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AEROS MANUAL SERIES
VOLUME III:
SUMMARY AND RETRIEVAL
(Second Edition)

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air and Waste Management
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

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The AEROS Summary and Retrieval Manual, Volume III of the OAQPS Guidelines Manual Series, describes and illustrates the reporting and analysis capabilities of the various AEROS systems. It also describes the analysis packages available for use in the evaluation of AEROS data and describes the user access procedures for obtaining AEROS reports. It describes the standard publications available from the NADB to provide quarterly or annual information on emissions and air quality. In an applications section, the manual provides specific examples of applications of AEROS data. It also gives an overview of the Comprehensive Data Handling System (CDHS), which is an AEROS-related system for storing and reporting air quality and emissions data.

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PREFACE

This third volume of the AEROS Manual Series is the combined result of efforts by EPA personnel and Agency contractors. Major portions were provided by GCA Corporation, Bedford, Massachusetts, under Contract No. 68-02-1376, Task Order No. 17 (EPA Project Officer Jacob G. Summers) and by Booz, Allen, and Hamilton, Inc., Bethesda, Maryland, under Contract No. 68-02-1005, Task Order No. 7 (EPA Project Officer Charles O. Mann). At the time these contracts were awarded, a standard format had not been developed. As new data become available, however, supplements to this parent document will be issued using a more uniform format.

To facilitate the addition of updates, revisions, or additions, a three-hole-punched format was adopted for the manual. The document can be placed in a binder or secured in such a manner that the new pages can be easily inserted.

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LIST OF ABBREVIATIONS

AEROS	Aerometric and Emission Reporting System
AQDM	Air Quality Display Model
AQCR	Air Quality Control Region
AQDHS-II	Air Quality Data Handling Subsystem-II
ATS	AEROS Terminal System
CAASE	Computer-Assisted Area Source Emissions
CDHS	Comprehensive Data Handling System
CDM	Comprehensive Data Management
EIS/P&R	Emissions Inventory Subsystem/Permit and Registration
EMS	Enforcement Management Subsystem
FMVECP	Federal Motor Vehicle Emissions Control Program
FPC	Federal Power Commission
GMT	Greenwich Mean Time
HATREMS	Hazardous and Trace Emissions System
IPP	Implementation Planning Program
MSL	Mean Sea Level
NAAQS	National Ambient Air Quality Standard
NADB	National Air Data Branch
NCC	National Computer Center
NEDS	National Emissions Data System
NER	National Emissions Report
OGC	Office of General Counsel
QCI	Quality Control Index
QAMIS	Quality Assurance Management Information System
REPS	Regional Emissions Projection System
SAROAD	Storage and Retrieval of Aerometric Data
SDS	Systems Development Section
SCC	Source Classification Code
SEAS	Strategic Environmental Assessment System
SIC	Standard Industrial Classification Code
SIEFA	Source Inventory Emission Factor Analysis
SIP	State Implementation Plan
SMSA	Standard Metropolitan Statistical Area
SOTDAT	Source Test Data System
TCP	Transportation Control Plan
UTM	Universal Transverse Mercator
WSAP	Weighted Sensitivity Analysis Program

ABSTRACT

The AEROS Summary and Retrieval Manual, Volume III of the OAQPS Guidelines Manual Series, describes and illustrates the reporting and analysis capabilities of the various AEROS systems. The reports available from each of the major systems are described and their retrieval options are explained. Sample computer printouts are used to illustrate the report formats.

This manual also describes the analysis packages available for use in the evaluation of AEROS data and describes the user access procedures for obtaining AEROS reports. It describes the standard publications available from the NADB to provide quarterly or annual information on emissions and air quality.

In an applications section, the manual provides specific examples of applications of AEROS data. The use of AEROS reports in typical air quality control activities is described.

The manual also gives an overview of the Comprehensive Data Handling System (CDHS), which is an AEROS-related system for storing and reporting air quality and emissions data.

ENVIRONMENTAL PROTECTION AGENCY	**SECTION** Volume III Updates	**SECTION** 0	**CHAPTER** 0	**SUBJECT** 0
NATIONAL AIR DATA BRANCH	**CHAPTER**	**DATE** 2/7/77		**PAGE** 1
VOLUME III. AEROS SUMMARY AND RETRIEVAL MANUAL	**SUBJECT**	Update III-1		

This section is used to document Update procedures and record Updates when they are issued and posted in this volume.

Chapter 0.1 describes background and Update procedures. Chapter 0.2 is used to file Update Notices.

As the usefulness of the AEROS Manuals is highly dependent on their completeness, accuracy and timeliness, the following provisions have been made to allow for revisions in the interim between periodic complete review and reprinting of volumes. Revisions will be accomplished through the issuance of AEROS Manual Updates, which may contain one or more separate revisions to a given Volume.

Responsibility for technical aspects of revisions is held by the groups in NADB responsible for the relevant system or operation, while compilation of revisions into Updates, and reproduction and distribution are overseen by the AEROS Manual Project Officer, Requests and Information Section.

These Updates will ordinarily be distributed to specific parties in OAQPS and other selected internal users and to AEROS Contacts in Regional Offices, who are designated holders of the appropriate AEROS Manual Volumes by their respective organizational units. These recipients are responsible for reviewing each Update and inserting it in the appropriate Volume and removing outdated portions as directed. They should also notify persons in their organizations to whom specific revisions may be of importance, and provide copies of revisions to those persons requiring them.

Three distinct types of revisions are foreseen: Urgent, Priority and Routine. Urgent revisions must be issued and entered into Manual Volumes as soon as possible to prevent adverse effects on operations.

Prior to compilation in a formal Update, drafts of Urgent revisions will be distributed to NADB and Regional Office AEROS Contacts with instructions on the timing of their use in system operations. These drafts should be filed in the appropriate Manual Volumes immediately preceding the portions to be replaced, pending issuance of the formal Update. Due to their importance, Urgent revisions will be issued by RIS as soon as complete, along with any other revisions which are ready for distribution at that time.

Priority revisions are substantive changes not crucial to system operations, and will generally be issued in Updates on a quarterly basis or combined with Urgent Updates when appropriate. Routine revisions are relatively minor changes such as editorial corrections, and will be included in regular or Urgent quarterly Updates as available.

Updates will consist of the actual revisions and any attendant changes to the Volume's Table of Contents, in appropriate format, accompanied by an Update Notice and any memoranda deemed appropriate by RIS. Updates will be compiled and numbered separately by AEROS Manual Volumes, with the Update Notice serving as an index and guide to implementation of the Update. The Update Notice will specify pages or sections to be removed and/or inserted, with descriptive comments on the content and relevance of changes. It will also include a summary of dates and numbers of previous Updates to the subject Volume, for verification of currency of the Volume. Upon receipt of an Update, the changes should be made as indicated on the Update Notice and the Notice itself initialed and filed in Section 0, Chapter 2.

A full compilation of Update Notices for each Manual Volume, entitled "Summary of AEROS Manual Updates: Volume ___," is available to users by request to:

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This document will allow the user to examine all previous Updates to determine the currency of any copy of the Volume, and, through the comments, possible relevance of revisions to specific areas of interest. This reference is provided especially for infrequent users and others not receiving Updates on a regular basis.

User input on the AEROS Manuals and possible revisions is welcomed. Technical or substantive matters should be referred directly to the cognizant party in NADB, if possible. Any questions on the appropriate source of technical information and any questions, comments or suggestions on the coverage, organization and other such aspects of this Volume should be directed to:

AEROS Manual Project Officer, MD-14
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This Update Notice concerns the enclosed replacement pages for Volume III of the AEROS MANUAL SERIES. Please remove and insert pages as listed below.

REMOVE	INSERT	COMMENTS
1. v to xiv	v to xiv	Routine. Contents revised to reflect Update.
2. --	0.0.0-1 to 0.1.0-4	Priority. New section describing Update procedures.
3. --	0.2.0-1 to 0.2.0-2	Routine. Update Notice III-1.*
4. 2.1.0-1 to 2.1.0-5	2.1.0-1 to 2.1.0-8	Priority. Two new reports listed. Contents of existing pages editorially revised.
5. 2.1.1-1 to 2.1.1-16	2.1.1-1 to 2.1.1-17	Routine. Correction in county code example, comment section expanded, and sample report section expanded.
6. 2.1.2-13 to 2.1.2-14	2.1.2-13 to 2.1.2-14	Priority. Revised to correct retrievals available.
7. 2.1.2-19	2.1.2-19 to 2.1.2-27	Priority. Two new reports added.
8. 2.3.1-1 to 2.3.1-21	2.3.1-1 to 2.3.1-21	Priority. Descriptions of "Raw Data Listings Greater Than or Equal to 24 Hours" and "Raw Data Listing Composite" revised and combined. Improperly placed page replaced with proper page 2.3.1-14. Other pages editorially revised.
9. 2.3.2-1 to 2.3.2-17	2.3.2-1 to 2.3.2-20	Priority. Revision of report descriptions.
10. 2.10.5-1	2.10.5-1 to 2.10.5-6	Priority. Documentation of Polk vehicle reports.

REMOVE	INSERT	COMMENTS
11. 5.1.2-1	5.1.2-1	Priority. Revised to correct page reference.
12. 6.5.2-1	6.5.2-1 to 6.5.2-2	Routine. Correction of typographical error.

UPDATE SUMMARY

Volume III

Number	Date
III-1	2/7/77

* When you have made the changes indicated in this Notice, initial the Notice and insert it in Chapter 0.2.0 of Volume III as a record of the Updates received and filed.

NOTE: Priority update information on the enclosed update pages is indicated with a vertical line in the left margin. Routine update information is not specifically identified.

Volume III of the AEROS manual illustrates the reporting capabilities of the various AEROS systems:

- Section 2 describes and illustrates the reports available from the major AEROS systems. The sorting and retrieval options for each are also described.
- Section 3 presents the various data analysis packages available for use with the AEROS data bases. These packages may be used in evaluating AEROS data and in utilizing AEROS data in modeling or analysis procedures such as the Implementation Planning Program.
- Section 4 outlines the user access procedures for obtaining reports described in this volume. Procedures for both EPA users and non-EPA users are included.
- Section 5 describes the various standard publications produced by EPA. These publications, which provide quarterly or annual information on emission levels as well as information on ambient air quality and air quality monitoring procedures, are based primarily on the AEROS emission system (NEDS) and the air quality monitoring system (SAROAD).
- Section 6 presents specific examples of the application of certain AEROS data retrievals and describes the use of AEROS reports in typical air quality control activities.
- Section 7 describes procedures and the interaction between SDS and programmers using AEROS data files and shows the file formats for commonly used files.
- Section 8 describes the procedures used to determine whether data coded confidential are properly classified. Steps required to handle confidentiality are described.
- Section 9 describes the Comprehensive Data Handling System, which is an AEROS-related and AEROS-compatible system for monitoring pollutant emissions as well as air quality measurements. This system is utilized primarily by the states to aid in meeting their reporting requirements for entering emissions and monitoring data into the AEROS files.

In this section, the reporting capabilities of the various data systems comprising AEROS are described. Individual reports from each system are described and illustrated. These systems and data banks include the following:

Emission Data System

Source Test Data System

Air Quality Data System

Air Quality Assurance Data

Hazardous and Trace Emissions Data System

State Implementation Plans System

Federal Power Commission Data

Auxiliary Data

The National Emissions Data System is a computerized data handling system which accepts, stores, and reports on information relating to sources of any of the five criteria pollutants (particulates, SO_x, NO_x, CO, and hydrocarbons). In NEDS, a major distinction is made between two types of sources: point sources and area sources. Point sources, in the broadest sense, are stationary sources large enough to be identified and tracked individually; per NEDS reporting requirements, they are any plants emitting more than 100 tons/year of any of the criteria pollutants. Area sources, on the other hand, are those stationary and mobile sources which individually emit less than 100 tons/year and are too small and too numerous to keep individual records on. In NEDS, area sources are considered collectively on a county basis. A large boiler within a power plant would be an example of a point source, whereas a single automobile is an example of the type of source considered collectively as an area source.

In NEDS, all source-related data are entered into the system via specially formatted point and area source coding forms and are stored in separate point and area source files. The type of data stored in the system for point and area sources is somewhat different and is described below.

POINT SOURCE DATA

The point source data in NEDS fall into the following major groups: General source information--name, address, types of source, Standard

Industrial Classification, year of record, comments, etc.

Emissions data--operating or production rates and capacities, estimated emissions, EPA calculated emissions, control device type and efficiency on each criteria pollutant, etc.

Modeling parameters--UTM coordinates of source, stack height and diameter, exhaust gas temperature, and flow rate.

Compliance information--allowable emissions, compliance status, schedules, etc.

These data are input to NEDS in the standard point source format, an example of which is illustrated in Figure 2.1.1.e.

NEDS point source data are organized into three hierarchial levels.

- Plant level data (corresponding to input card 1) is general information that applies to an entire facility defined as a point source.

- Point level data (corresponding to input cards 2-5) applies to individual emission points within a plant. A plant may contain any number of emission points. A point is that portion of a facility that may be considered individually for emission purposes. A point may contain one or more processes or pieces of equipment that are related in contributing to the emissions from the point. In most cases, a point emits pollutants through a single confined location such as a stack, but it may emit pollutants at more than one location or at no clearly defined location within a plant.

- Process level data (corresponding to input card 6) are source data or use factors which may be used to define and compute emissions for process activities within an emission point. In NEDS, processes are defined by Source Classification Codes (SCC's). In general, for each SCC there are emission factors which relate the quantity of pollutants generated by a process to annual process operating rate. NEDS uses a file of emission factors associated with each SCC to compute emissions. There may be multiple SCC's for an emission point. For instance, if a boiler is defined as an emission point and it burns two fuels, two SCC's are needed to define these processes and allow emissions to be computed. In another example, if an asphalt batch plant is defined as an emission point, emissions may result from aggregate drying, burning fuel to provide heat for the process, and various material transfer points associated with loading and converging of the product. Multiple SCC's would be required to describe all of these processes.

The point source file provides for the use of alternate methods for determining the emissions which are reported. Most commonly, emissions will be calculated for each SCC using the emission factors in the SCC Emission Factor file. However, by use of an appropriate code on the input form and completion of fields for recording hand calculated emission estimates, more accurate estimates of emissions may be input to represent point emissions in place of the emission factor computed emissions. For some SCC's, no emission factors are available, so an alternate method must be used to estimate emissions for these records.

A list of the possible emission estimation methods used for NEDS point source calculations is given below.

0. No emissions
1. Stack-test results or other emission measurement
2. Material balance using engineering knowledge and expertise of process
3. Emissions calculation using emissions factors in SCC file
4. Guess
5. Emissions calculation using special emission factors that differ from the SCC listing
6. New source for which building approval has been granted but which is not yet in operation (zero emissions)
7. Source which has ceased to operate (zero emissions)

The procedure for computer calculation of emissions for each of these cases is as follows:

Methods 0, 6 and 7: Calculated emissions are set to zero.
Methods 1, 2, 4, and 5: Calculated emissions are set equal to hand calculated emission estimates. These must be distributed among multiple SCC's for a point, if necessary.
Method 3: Calculated emissions are derived as:

$$\text{Calculated Emissions} = \left(\text{Annual operating rate for SCC}\right) \times \left(\frac{\text{Emission factor from SCC File}}{2{,}000}\right)$$

$$\left(\text{Fuel parameter if applicable}\right) \times \left(\frac{\text{100-control efficiency}}{100}\right)$$

AREA SOURCE DATA

NEDS area source data may be grouped as follows:

General source information--name and location of area (county) source, year of record.

Activity levels--countywide activity level of each type of area source (e.g., tons of coal burned in all domestic space heating equipment in a county).

Emissions data--emission estimates for the entire county (for each pollutant) as well as for each area source category.

These data are input to NEDS in the standard area source format which is illustrated in Figure 2.1.1.f.

The area source activity levels are derived primarily from related information published by other Federal agencies, supplemented by special data developed by EPA for the purpose of developing NEDS area source inventories. Published data such as fuel use by state, motor vehicle miles of travel by state and county and forest fire acres burned by state are used with related data such as employment, population, and miscellaneous geographic or economic data available on a county-by-county basis to derive annual estimates of the activity levels for each of the NEDS area source categories. The activity levels derived are adjusted to account for point source activity (such as fuel use by point sources) so that the area source data reflect only the activity levels (and resulting calculated emissions) that are not accounted for by point sources. The area source data are developed mainly by EPA, but may be supplemented by data voluntarily submitted by state agencies.

The area source emission estimates are calculated for each source category by a simple procedure:

$$\text{Calculated Emissions} = \left(\text{Activity Level}\right) \times \left(\frac{\text{Emission Factor}}{2{,}000}\right) \times \left(\begin{array}{c}\text{Fuel Parameter,}\\ \text{if applicable}\end{array}\right)$$

Emission factors are contained in the NEDS area source emission factor file. For many categories the same emission factors are used for all counties. However, for some source categories, state- or county-specific emission factors have been developed which consider local variables that affect calculation of emissions. These more specific emission factors are used in NEDS calculations for all highway motor vehicle and fugitive dust categories and for selected other categories in a few counties where data are available to develop more applicable emission factors than the national emission factors. Provision is also made, as an option, to override computer calculated emissions for any source category for any county, by hand calculated emissions that may be more accurate than any simple emission factor calculation.

Table 2.1.0.a summarizes the retrieval options available for each NEDS report described in this chapter.

Table 2.1.0.a. SUMMARY OF NEDS RETRIEVALS

Report	Nation	State	EPA Region	AQCR	State Portions of Interstate AQCR's	County	Plant Number	Point Number	Source Classification Code	Ownership	Standard Industrial Classification Code	Emission Estimation Method	Sources Emitting More Than X Tons of Any One Pollutant	Years of Record for AQ Data	Valid Combination of Items
Raw Data Reports															
Point Source Report	x	x		x		x	x	x	x	x	x	x	x		x
Condensed Point Source Report	x	x		x		x	x	x	x	x	x	x	x		x
Area Source Report		x				x									x
Allowed Versus Computed Emissons Report	x	x				x	x	x							x
Point Source Cards	x	x		x		x	x	x	x	x	x	x	x		x
Area Source Cards	x	x		x		x									x
Summary Reports															
Emission Summary Report	x	x	x	x	x	x									
Area Source Fuel Usage Report		x													
Annual Fuel Summary Report	x	x		x		x									
Plant Emission Summary Report	x	x		x		x									
SCC Emissions Report	x														
Plant Name Report	x	x		x		x	x	x	x	x	x	x	x		x
Emissions/Air Quality Report				x										x	x
Emissions by SCC Report	x	x		x		x	x	x	x	x	x	x	x		x
Potential Emissions Report	x	x		x		x	x	x	x	x	x	x	x		x
Management Reports															
Plant-Point-SCC Count Report	x														
Missing Item Report	x	x		x		x	x	x	x	x	x	x	x		x
Highest Plant Number of County Report		x													

POINT SOURCE REPORT

General Description

Sources emitting more than a specific amount per year of any one of the five criteria pollutants (particulates, sulfur oxides, nitrogen oxides, hydrocarbons, and carbon monoxide) are classified by EPA as point sources.* The basic "Point Source Report" produces a full, formatted listing of all relevant identifying and descriptive point source data as well as estimated and NEDS calculated emissions for each criteria pollutant. More specifically, the following information is available for each emission point+ for each criteria pollutant:

a. Geographic Location
b. Year of Record
c. Modeling Parameters - UTM coordinates, stack height, diameter, temperature, etc.
d. Emission Data - Throughput rate, estimated emissions, estimation method, control equipment, control efficiency, etc.
e. Allowable Emissions
f. Compliance Status
g. Operating Information
h. Annual Fuel Consumption
i. Source Operating Characteristics

Each page of computer output contains the data for one process (SCC).

Retrievals Available

The following "Point Source Report" retrieval options are available:

a. State
b. AQCR

---

* The specific amount is an SIP reporting requirement defined in 40 CFR, Section 51.7. NEDS also accepts data based on a state's definition of a point source.

+ An emission point is a source which is coded on a single NEDS coding form.

c. County
d. Plant
e. Point
f. Ownership Code
g. SIC
h. Emissions Estimation Method
i. SCC (I, I+II, I+II+III, I+II+III+IV)
j. Sources emitting more than x tons of any one pollutant
k. Any combinations of the above

There are only certain combinations of the retrieval categories listed above that are valid. For example, the county code numbers are unique within each state but not across state boundaries. Thus although no two counties in Arizona have the same county code number, 0040 is the county code number both for Apache County in Arizona and Arkansas County in Arkansas. As a result, retrieval by county is only meaningful when combined with retrieval by state.

In the same manner retrieval by plant requires specification of county and state identifiers; retrieval by point requires specification of plant, county, and state identifiers.

It should be noted that the same type of restriction applies to retrieval by SCC parts. Retrieval by SCC part IV is dependent on retrieval by SCC part III, retrieval by part III on retrievals by part II, etc.

Sorts Available

Subject to the same restrictions set forth for "Retrievals Available," the selected data can be sorted in ascending (a) or descending (d) sequence for any of the following data values:

a. State (a)
b. AQCR (a)
c. County (a)
d. Plant Number (a)
e. Point Number (a)
f. Source Classification Code (a)
g. Ownership (Federal, local government, utlity, or all) (a)
h. Standard Industrial Classification (SIC) Code (a)
i. Emissions Estimation Method (a)
j. Plant Names in Alphabetical Order (a)
k. Amount of emissions for any one of the five criteria pollutants (d)
l. Year of Record (a)
m. Control Equipment (a)
n. Control Efficiency (d)
o. Fuel Sulfur Content (d)
p. Fuel Ash Content (d)
q. Major City Code (a)
r. UTM Coordinates (d)
s. Operating Rate (d)
t. Confidentiality (a)

Sample Report

Figure 2.1.1.a is a sample "Point Source Report" retrieval for Colleton County in the State of South Carolina.

Comments

Depending upon the retrieval options selected, some point sources located in the geographic areas under consideration may be omitted from the report listing and some may have more than one emission point selected.

For example, consider a "Point Source Report" based on retrieval by SCC or SIC category. There may well be some point sources located in the requested geographic areas which do not fall within the requested SCC or SIC categories. These point sources will be omitted from the report.

On the other hand, a point source may be included for more than one SCC. When retrieval is by plant, one page of data for such a point source will be printed for each of its SCC's. When determining total plant emissions from such a printout, care must be taken to avoid adding duplicate "Hand Calculated Point Emissions" into the total. The "Computer Calculated SCC Emissions" should be used to determine total plant emissions. The calculated emissions are labeled "Computer Calculated SCC Emissions" on the report. The field labeled "Hand Calculated Point Emissions" reflects emissions for a NEDS emission point which are entered by the data originator. The same values for "Hand Calculated Point Emissions" will be repeated on separate pages for points with more than one SCC. Normally, in such cases, the sum of all "Computer Calculated SCC Emissions" for a point will equal the "Hand Calculated Point Emissions" for points with emission estimation method codes of 1,2,4,5, 6, and 7. Some data conditions may prevent this relationship from always holding true. For points with emission estimation method code 3 (SCC emission factor file calculation), the calculated emissions have no dependence on any hand calculated point emissions that may be reported.

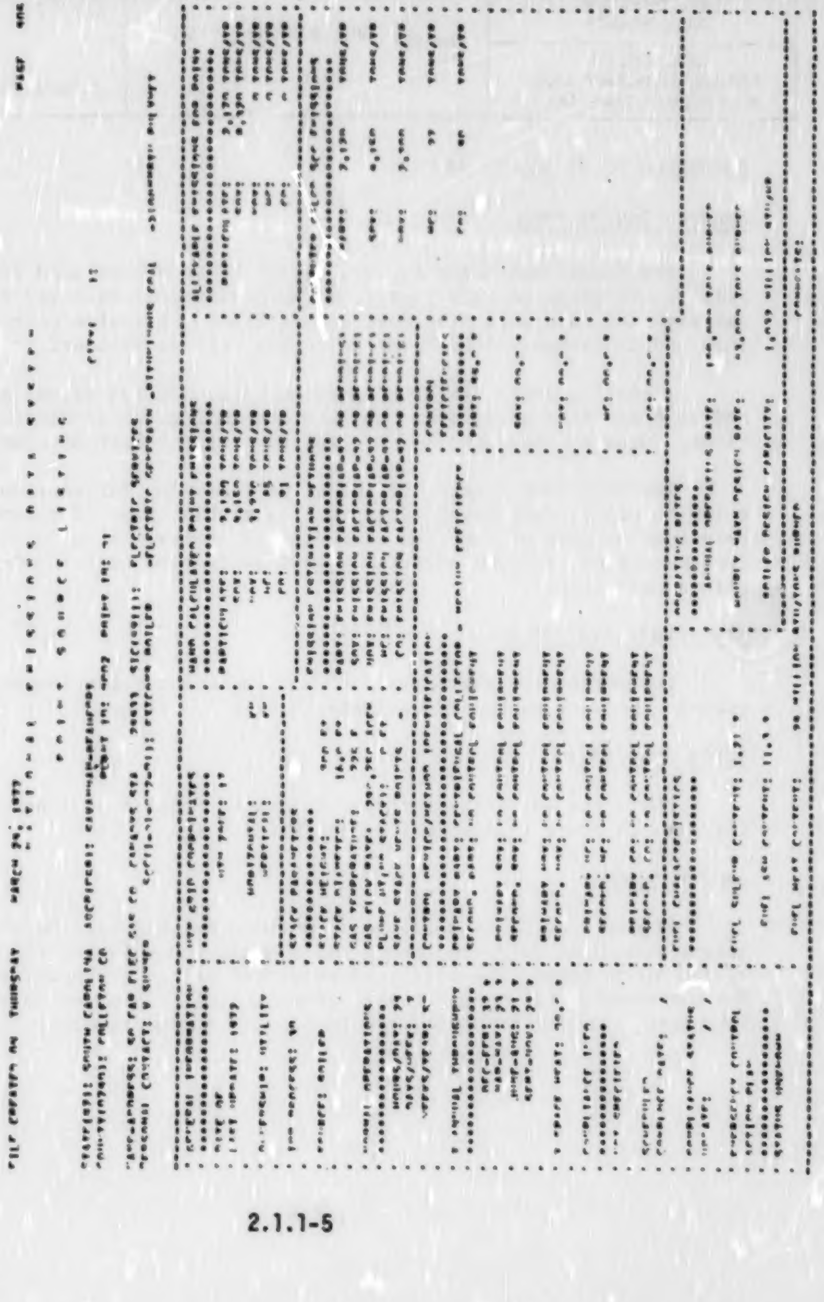


Figure 2.1.1-a. Point source report.

CONDENSED POINT SOURCE REPORT

General Description

The "Condensed Point Source Report" is an abbreviated listing for emission points. To generate this report, a particular pollutant and the minimum value of emissions of that pollutant must be specified. Emission points emitting more than that minimum value of the pollutant will be included in the report.

A heading containing the creation date, minimum value, specified pollutant, and an indication of whether the data are in English or metric units is printed first. Next is displayed a five-line summary for each SCC per emission point.

The five line summary includes the following information for each SCC per emission point: geographic location, ownership, year of record, and annual emissions of each of the five criteria pollutants. Also included are the control equipment, control efficiency, and estimation method relevant to the specified pollutant.

Retrievals Available

The retrievals available for the "Condensed Point Source Report" are exactly the same as those available for the "Point Source Report."

Sorts Available

The sorts available for the "Condensed Point Source Report" are exactly the same as those available for the "Point Source Report."

Sample Report

Figure 2.1.1.b is a sample "Condensed Point Source Report." The pollutant specified is hydrocarbons and the minimum value of the pollutant included is 50 tons. The retrieval requested is for the State of Rhode Island. The condensed point source report presents only "Computer Calculated SCC Emissions," as described for the full point source report.

```
FILE CREATED ON WEDNESDAY       MARCH 12, 1975

                              N A T I O N A L    E M I S S I O N    D A T A    S Y S T E M

                                 CONDENSED POINT SOURCE LISTING FOR HYDROCARBONS
                                     FOR ALL VALUES > THAN OR = TO      50
                                      EMISSIONS ARE IN SHORT TONS PER YEAR

                                                                                PART   S O X   N O X   H C     C O

0006:  US NAVY AIR STATION, KINGSTON                          OWNERSHIP:  FEDRL GOVT   93     6      35     175     496
41:  RHODE ISLAND    0380:  WASHINGTON                        YEAR OF RECORD:  1969
120:  METROPOLITAN PROVIDENCE (MAS
060:  NO CONTROL EQUIPMENT                              EFF -      % POINT:  07
ESTIMATE BY (3) USED EMISSIONS FACTORS          SIC - 4953   SCC  -  3-01-002-01

0040:  PROVIDENCE DUMP, PROVIDENCE                            OWNERSHIP:  LOCAL GOVT   40     3      15      75     213
41:  RHODE ISLAND    0320:  PROVIDENCE                        YEAR OF RECORD:  1969
1[illegible]:  METROPOLITAN PROVIDENCE (MAS
060:  NO CONTROL EQUIPMENT                              EFF -      % POINT:  02
ESTIMATE BY (3) USED EMISSIONS FACTORS          SIC - 4953   SCC  -  3-01-002-01
```

Figure 2.1.1.b. Condensed Point Source Report

AREA SOURCE REPORT

General Description

Area sources are an aggregation of all sources not defined as point sources in a specific geographic area. Area sources usually include all mobile sources and any stationary sources too small, difficult, or numerous to classify as point sources. Area source emissions are assumed to be spread over the entire area that has been defined as an area source. Activity level data for these sources are compiled on a countywide basis. The "Area Source Report" is a formatted listing of the following information for each area source retrieved:

a. Area identification
b. Total emissions estimated from SIP's
c. Activity of stationary sources
d. Activity of solid waste disposal
e. Activity of mobile sources - fuel usage
f. Activity of miscellaneous sources
g. Total calculated emissons

Two area sources are printed per page of computer output.

Retrievals Available

The "Area Source Report" retrieval options are as follows:

a. State
b. State/County

Sorts Available

Area sources are sorted sequentially within state by county. No other sort options are available for area sources.

Sample Report

Figure 2.1.1.c is a sample "Area Source Report" retrieved for the first two counties of the State of Rhode Island.

```
                           SOURCE ID: A STATE-  41  COUNTY-  0060  AQCR-  120  YEAR-  72
-------------------------------------------------------------------------------------------------------------
!EM-EST-PRT(100-TONS)=          ! EM-EST-SO2(100-TONS)=          ! EM-EST-NOX(100-TONS)=          ! EM-EST-HC(100-TONS)=                !
! EM-EST-CO(100-TONS)=          !    % SULF-ANTH-COAL=       0.7!    % SULF-BITUM-COAL=       2.0!    % SULF-DIST-OIL=             0.2!
!    % SULF-RESID-OIL=       0.7!     % ASH-ANTH-COAL=      11.0!     % ASH-BITUM-COAL=       8.0!  RES-ANTH(10-TONS)=              15!
!  RES-BITUM(10-TONS)=         0!RES-DIS-OIL(10E4-GAL)=     1034!RES-RID-OIL(10E4-GAL)=         0!RES-N-GAS(10E7-CUFT)=             53!
!  RES-WOOD(100-TONS)=         2!    CI-ANTH(10-TONS)=         4!   CI-BITUM(10-TONS)=          3!CI-DIS-OIL(10E4-GAL)=            168!
!CI-RID-OIL(10E4-GAL)=       380!  CI-N-GAS(10E7-CUFT)=       23!   CI-WOOD(100-TONS)=           !   IND-ANTH(10-TONS)=              0!
!  IND-BITUM(10-TONS)=        36!    IND-COKE(10-TONS)=         !IND-DIS-OIL(10E4-GAL)=       285!IND-RD-OIL(10E4-GAL)=            295!
!IND-N-GAS(10E7-CUFT)=        17!   IND-WOOD(100-TONS)=         !IND-PR-GAS(10E7-CUFT)=          !-----------------------------------!
! RES-OS-INC(10-TONS)=        40! IND-OS-INC(100-TONS)=        1! CI-OS-INC(100-TONS)=         4!   PART-EMS(T/YR)=          363.090!
!RES-OP-BRN(100-TONS)=        73!IND-OPN-BRN(100-TONS)=        7! CI-OPN-BRN(100-TONS)=        6!    SO2-EMS(T/YR)=          672.150!
!GAS-LT-VEH(1000-GAL)=     15879!GAS-HVY-VEH(1000-GAL)=     1859!GAS-OFF-HWY(1000-GAL)=        0!    NOX-EMS(T/YR)=         1996.249!
!DIE-HV-VEH(1000-GAL)=      1086!DIE-OFF-HWY(10E4-GAL)=       32! DIE-RR-LOC(10E4-GAL)=        4!     HC-EMS(T/YR)=         3446.594!
!     COUNTY-POP(1000)=       45!         DENSITY-CODE=        9!MIL-AIRCRAFT(100--TO)=         !     CO-EMS(T/YR)=        16886.487!
!CIV-AIRCRAFT(10-LTO)=          !COMM-AIRCRAFT(10-LTO)=         !   VES-BITUM(10-TONS)=        0!NO.  6-EMS(T/YR)=            0.000!
!VES-DIE-OL(10E4-GAL)=          !VES-RID-OIL(10E4-GAL)=         !    VES-GAS(1000-GAL)=      711!NO.  7-EMS(T/YR)=            0.000!
! EVAP-SOLVENT(T/YR) =       112!   EVAP-GAS(10E5-GAL)=      175!VEH-MI-LA-RD(10E4-MI)=         !NO.  8-EMS(T/YR)=            0.000!
!VEH-MI-RURL(10E4-MI)=          !VEH-MI-SUBAN(10E4-MI)=         !VEH-MI-URBAN(10E4-MI)=         !NO.  9-EMS(T-YR)=            0.000!
!DIRT-RD-TRV(1000-MI)=          ! DIRT-AIR-STRIPS(LTO)=         !CONST-LAND(1000-ACRE)=         !NO. 10-EMS(T/YR)=            0.000!
!ROCK-H-ST(1000-TONS)=          !FOREST-FIRE-AR(ACRES)=         !FOR-FIRE QU(TON/ACRE)=         !NO. 11-EMS(T/YR)=            0.000!
!SLASH-BRN-ARE(ACRES)=          !SLASH-BN-QU(TON/ACRE)=         ! ORCHARD-HEATERS(100)=         !NO. 12-EMS(T/YR)=            0.000!
!ORCH-DA-FIRED(DA/YR)=          !STRUCTURE-FIRES(#/YR)=         !CRB-SIZE-BK(100-CUYD)=         !-----------------------------------!
! COAL-REF-BURN(#/YR)=          !            COMMENTS=                                                                              !
-------------------------------------------------------------------------------------------------------------
```

```
                           SOURCE ID: A STATE-  41  COUNTY-  0140  AQCR-  120  YEAR-  72
-------------------------------------------------------------------------------------------------------------
!EM-EST-PRT(100-TONS)=          ! EM-EST-SO2(100-TONS)=          ! EM-EST-NOX(100-TONS)=          ! EM-EST-HC(100-TONS)=                !
! EM-EST-CO(100-TONS)=          !    % SULF-ANTH-COAL=       0.7!    % SULF-BITUM-COAL=       2.0!    % SULF-DIST-OIL=             0.2!
!    % SULF-RESID-OIL=       0.7!     % ASH-ANTH-COAL=      11.0!     % ASH-BITUM-COAL=       8.0!  RES-ANTH(10-TONS)=              63!
!  RES-BITUM(10-TONS)=         0!RES-DIS-OIL(10E4-GAL)=     3346!RES-RID-OIL(10E4-GAL)=         0!RES-N-GAS(10E7-CUFT)=            172!
!  RES-WOOD(100-TONS)=         3!    CI-ANTH(10-TONS)=        13!   CI-BITUM(10-TONS)=          8!CI-DIS-OIL(10E4-GAL)=            845!
!CI-RID-OIL(10E4-GAL)=      1896!  CI-N-GAS(10E7-CUFT)=       72!   CI-WOOD(100-TONS)=           !   IND-ANTH(10-TONS)=              0!
!  IND-BITUM(10-TONS)=        73!    IND-COKE(10-TONS)=         !IND-DIS-OIL(10E4-GAL)=      1388!IND-RD-OIL(10E4-GAL)=           1441!
!IND N-GAS(10E7-CUFT)=        35!   IND-WOOD(100-TONS)=         !IND-PR-GAS(10E7-CUFT)=          !-----------------------------------!
! RES-OS-INC(10-TONS)=       125! IND-OS-INC(100-TONS)=        2! CI-OS-INC(100-TONS) =       15!   PART-EMS(T/YR)=         1119.887!
!RES-OP-BRN(100-TONS)=       228!IND-OPN-BRN(100-TONS)=       20! CI-OPN-BRN(100-TONS)=       19!    SO2-EMS(T/YR)=         2895.826!
!GAS-LT-VEH(1000-GAL)=     52096!GAS-HVY-VEH(1000-GAL)=     6100!GAS-OFF-HWY(1000-GAL)=        0!    NOX-EMS(T/YR)=         6875.385!
!DIE-HV-VEH(1000-GAL)=      3366!DIE-OFF-HWY(10E4-GAL)=      102! DIE-RR-LOC(10E4-GAL)=       12!     HC-EMS(T/YR)=        11140.906!
!     COUNTY-POP(1000)=      142!         DENSITY-CODE=        9!MIL-AIRCRAFT(100-LTO)=         !     CO-EMS(T/YR)=        52711.130!
!CIV-AIRCRAFT(10-LTO)=          !COMM-AIRCRAFT(10-LTO)=         !   VES-BITUM(10-TONS)=        0! NO.  6-EMS(T/YR)=           0.000!
!VES-DIE-OL(10E4-GAL)=          !VES-RID-OIL(10E4-GAL)=         !    VES-GAS(1000-GAL)=      619! NO.  7-EMS(T/YR)=           0.000!
!   EVAP-SOLVENT(T/YR)=       710!   EVAP-GAS(10E5-GAL)=      551!VEH-MI-LA-RD(10E4-MI)=         ! NO.  8-EMS(T/YR)=           0.000!
!VEH-MI-RUPL(10E4-MI)=          !VEH-MI-SUBAN(10E4-MI)=         !VEH-MI-URBAN(10E4-MI)=         ! NO.  9-EMS(T/YR)=           0.000!
!DIRT-RD-TRV(1000-MI)=          ! DIRT-AIR-STRIPS(LTO)=         !CONST--AND(1000-ACRE)=         !NO. 10-EMS(T/YR)=            0.000!
!ROCK-H-ST(1000-TONS)=          !FOREST-FIRE-AR(ACRES)=         !FOR-FIRE-QU(TON/ACRE)=         !NO. 11-EMS(T/YR)=            0.000!
!SLASH-BRN-ARE(ACRES)=          !SLASH-BN-QU(TON/ACRE)=         ! ORCHARD-HEATERS(100)=         !NO. 12-EMS(T/YR)=            0.000!
!ORCH-DA-FIRED(DA/YR)=          !STRUCTURE-FIRES(#/YR)=         !CRB-SIZE-BK(100-CUYD)=         !-----------------------------------!
!COAL-RED-BURN (#/YR)=          !            COMMENTS=                                                                              !
-------------------------------------------------------------------------------------------------------------
```

Figure 2.1.1.c. Area Source Report

ALLOWED VERSUS COMPUTED EMISSIONS REPORT

General Description

For each pollutant, allowed emissions may be entered into NEDS for a given emission point. The calculated emissions refer to the emissions associated with each SCC of that point source. The "Allowed Versus Computed Emissions Report" was written to permit comparison of coded allowable emissions with total calculated emissions for the emission point.

Each plant requested is represented in the report by one or more pages of computer output. A heading containing the creation date and identifying geographic data is printed on the first page. In the pages that follow, the emission data for each plant are described with the points listed in ascending numerical order. For each point, the report prints the allowed emissions for each pollutant (zero values are printed as blanks), the calculated emissions of each pollutant for each SCC, and the totals of the calculated emissions for each pollutant.

Retrievals Available

The data may be retrieved for all or any combination of the five criteria pollutants. The options available for retrieval include any combination of the following keys compatible with the restrictions set forth in the NEDS Point Source Report:

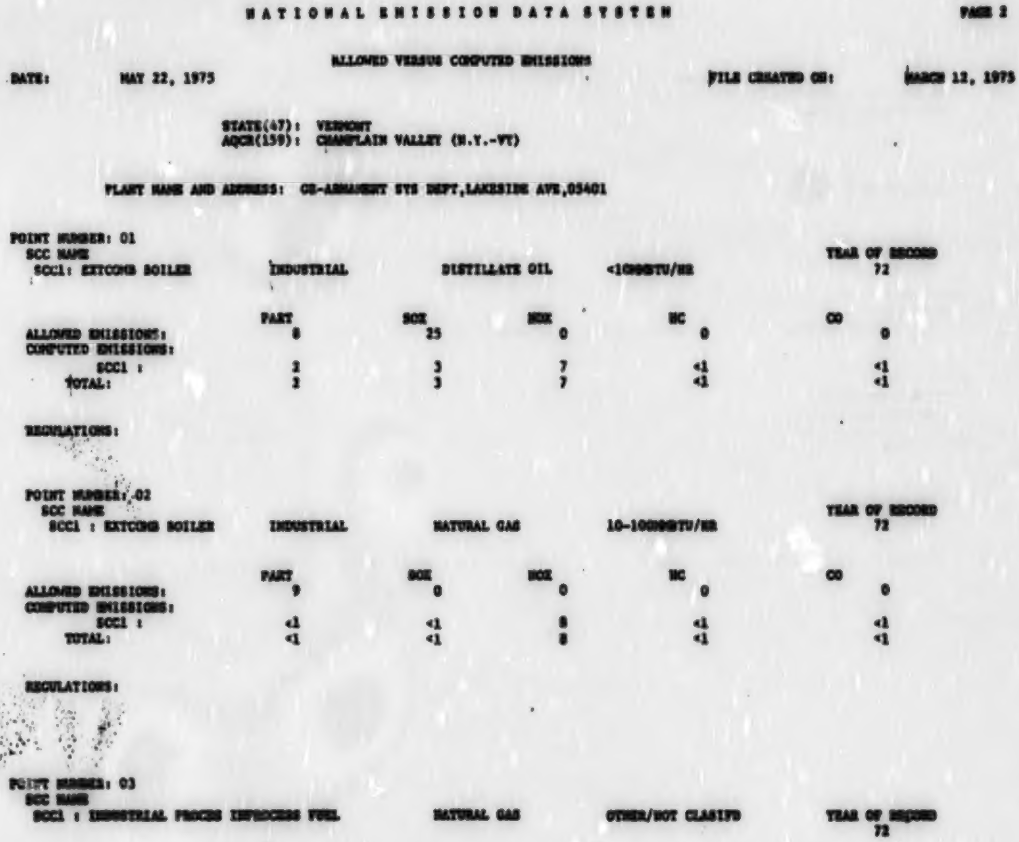
a. Nation
b. State
c. County
d. Plant
e. Point

Sorts Available

The data may be sorted either by state or AQCR.

Sample Report

Figure 2.1.1.d is a sample from an "Allowed Versus Computed Emissions Report" retrieved for the State of Vermont and the Air Quality Control Region of Champlain Valley.



```
                    N A T I O N A L   E M I S S I O N   D A T A   S Y S T E M                      PAGE 2

                                  ALLOWED VERSUS COMPUTED EMISSIONS
DATE:      MAY 22, 1975                                                    FILE CREATED ON:      MARCH 12, 1975

                         STATE(47):  VERMONT
                         AQCR(159):  CHAMPLAIN VALLEY (N.Y.-VT)

              PLANT NAME AND ADDRESS:  GE-ARMAMENT SYS DEPT,LAKESIDE AVE,05401

POINT NUMBER: 01
  SCC NAME                                                                          YEAR OF RECORD
   SCC1: EXTCOMB BOILER        INDUSTRIAL          DISTILLATE OIL      <10MMBTU/HR            72

                               PART            SOX            NOX            HC            CO
  ALLOWED EMISSIONS:              8             25              0             0             0
  COMPUTED EMISSIONS:
         SCC1 :                   2              3              7            <1            <1
      TOTAL:                      2              3              7            <1            <1

  REGULATIONS:

POINT NUMBER: 02
  SCC NAME                                                                          YEAR OF RECORD
   SCC1 : EXTCOMB BOILER       INDUSTRIAL          NATURAL GAS         10-100MMBTU/HR         72

                               PART            SOX            NOX            HC            CO
  ALLOWED EMISSIONS:              9              0              0             0             0
  COMPUTED EMISSIONS:
         SCC1 :                  <1             <1              8            <1            <1
      TOTAL:                     <1             <1              8            <1            <1

  REGULATIONS:

POINT NUMBER: 03
  SCC NAME
   SCC1 : INDUSTRIAL PROCES INPROCESS FUEL         NATURAL GAS         OTHER/NOT CLASIFD      YEAR OF RECORD
                                                                                              72
```

Figure 2.1.1.d. Allowed Versus Computed Emissions Report

```
                            PART          SOX          NOX          HC          CO
ALLOWED EMISSIONS:            2             0            0            0            0
COMPUTED EMISSIONS:
        SCC1 :
    TOTAL:

REGULATIONS:



POINT NUMBER: 04
  SCC NAME
   SCC1 : POINT SC EVAP     SURFACE COATING   PAINT        GENERAL                YEAR OF RECORD
                                                                                       72

                            PART          SOX          NOX          HC          CO
ALLOWED EMISSIONS:                                                    0
COMPUTED EMISSIONS:
        SCC1 :                                                       11
    TOTAL:                                                           11

REGULATIONS:
```

Figure 2.1.1.d (continued). Allowed Versus Computed Emissions Report

POINT SOURCE CARDS

General Description

The "Point Source Cards" report selects data from NEDS and creates punched cards or a magnetic tape in the NEDS point source input format.

Retrievals Available

Cards may be retrieved for any one or all of the criteria pollutants subject to the restrictions set forth in the NEDS Point Source Report for the following key items:

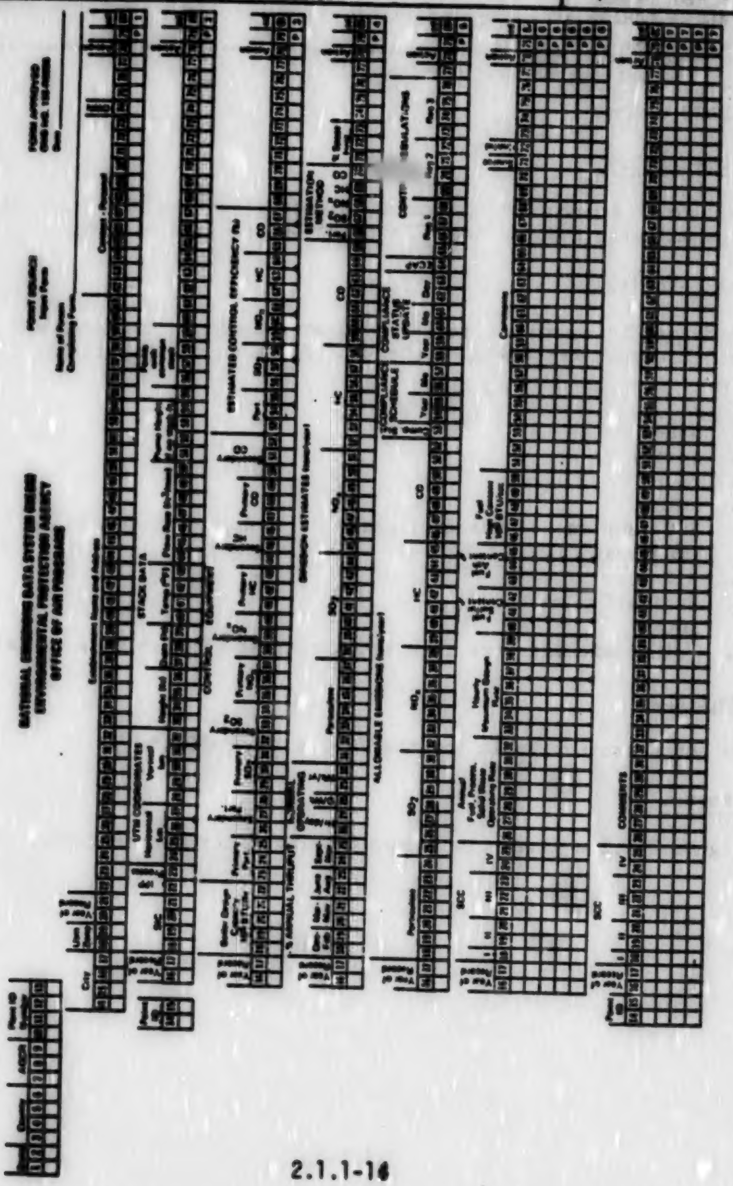
a. State
b. County
c. Plant
d. Point
e. SCC (any one of the four parts or combination thereof)
f. Ownership
g. SIC
h. Estimation method
i. AQCR
j. Point emitting more than the specified minimum of a certain pollutant

Sorts Available

No sorts are available for the "Point Source Cards."

Sample Report

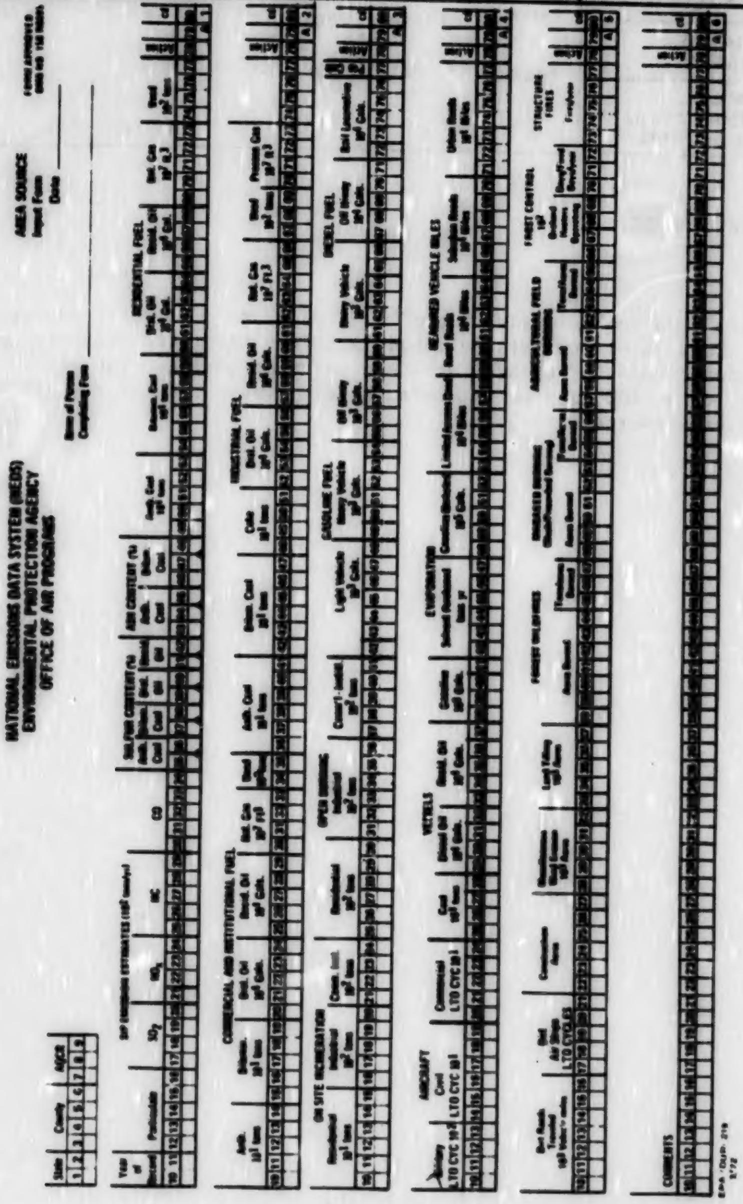
Figure 2.1.1.e gives the format of NEDS point source cards.



2.1.1.e. Point Source Cards Format

AREA SOURCE CARDS

The "Area Source Cards" report is similar to the "Point Source Cards" report. This report outputs selected data from NEDS onto computer cards or onto magnetic tape in the NEDS area source input format. The nation, a state, a county, or an AQCR may be retrieval keys. Figure 2.1.1.f gives the format for NEDS area source cards.



NATIONAL EMISSIONS DATA SYSTEM (NEDS)
ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF AIR PROGRAMS

AREA SOURCE
Input Form

Figure 2.1.1.f. Area Source Cards Format

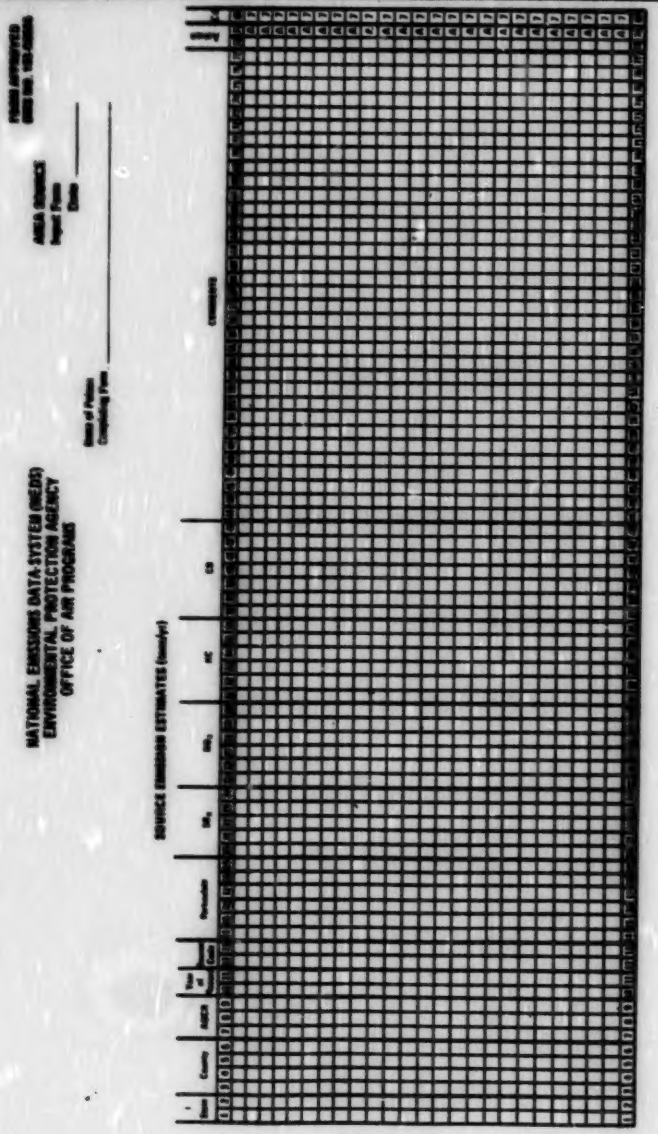

NATIONAL EMISSIONS DATA SYSTEM (NEDS)
ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF AIR PROGRAMS
AREA SOURCE
Input Form
Date
Name of Person Completing Form
SOURCE EMISSION ESTIMATES (tons/yr)
State
County
AQCR
Year of Record
Particulate
SOx
NOx
HC
CO

Figure 2.1.1.f (continued). Area Source Cards Format

2.1.2.1 EMISSION SUMMARY REPORT

2.1.2.1.1 GENERAL DESCRIPTION

The "Emission Summary Report" shows the annual number of tons of particulates, sulfur oxides, nitrogen oxides, hydrocarbons, and carbon monoxide emitted by SCC group within a given geographical area based on emissions as of a specific date. The emission sources included are:

- Fuel Combustion
    - Residential Fuel (Area)
    - Electric Generation (Point)
    - Industrial Fuel (Area and Point)
    - Commercial Industrial Fuel (Area and Point)
    - Internal Combustion (Point)
- Industrial Process (Point)
    - 13 Categories
- Solid Waste Disposal
    - Government (Point)
    - Residential (Area)
    - Commercial-Institutional (Area and Point)
    - Industrial (Area and Point)
    - Other (Point)
- Transportation (Area)
    - Land Vehicles
    - Aircraft
    - Vessels
    - Gas Handling Evaporative Loss
- Miscellaneous (Area)
- Other (Point)

A grand total of emissions, subdivided in area and point source emissions, is also printed.

2.1.2.1.2 RETRIEVALS AVAILABLE

The retrieval keys for the "Emission Summary Report" are as follows:

a. Nation
b. State
c. EPA Region
d. State/County
e. AQCR
f. State portions of interstate AQCRs

2.1.2.1.3 SAMPLE REPORTS

A sample "Emission Summary Report" for the nation is represented in Figure 2.1.2.a.

The format of this report is somewhat shorter when retrieval is for an area where all categories of emissions are not present because the inactive categories will be omitted.

```
                              NATIONAL EMISSIONS DATA SYSTEM
                              ******************************

                              ENVIRONMENTAL PROTECTION AGENCY
                              *******************************

    NATIONWIDE EMISSIONS REPORT                                         RUN DATE:           MAY 07, 1975
    ***************************                                    EMISSIONS AS OF:       MARCH 12, 1975
       UNITED STATES

                            PARTICULATES          SOX             NOX              HC              CO
                          **************  **************  **************  **************  **************
                             TONS / YR       TONS / YR       TONS / YR       TONS / YR       TONS / YR

FUEL COMBUSTION
***************

  EXTERNAL COMBUSTION

     RESIDENTIAL FUEL (AREA)

        ANTHRACITE COAL             14385           38056            4315            3596          129462
        BITUMINOUS COAL             51647          193427            7747           51647          232416
        DISTILLATE OIL              73902          234832           80683           22171           36951
        RESIDUAL OIL                 9427           31472           16395            1230            1639
        NATURAL GAS                 20048            1683          224386           22439           56096
        WOOD                        59178            3551           23671           47362           47362
        TOTAL (RESIDENTIAL)        236587          503019          365197          148425          503965

     ELEC GENERATION (POINT)

        ANTHRACITE COAL             23659           62243           34406             191            4715
        BITUMINOUS COAL           3381794        17186403         4472016           58237          188706
        LIGNITE                     64381          141895           86121            1647            5389
        RESIDUAL OIL                66668         1876323          976393           20630           30255
        DISTILLATE OIL               2727           32029           46632            1112            1209
        NATURAL GAS                 37070          176425         1436710            3956           43077
        PROCESS GAS                   143            3961           11458             126             345
        COKE                          287            3435             362               1              20
        OTHER                        4891           46542           34029            1728               1
        TOTAL (ELEC GEN)          3579619        19487235         7083724           87623          273815

     INDUSTRIAL FUEL

        ANTHRACITE
           AREA SOURCES               106             134              86               1              11
           POINT SOURCES             8945           10006            3214              46            1349
        BITUMINOUS COAL
           AREA SOURCES            870920          646022          119991            7999           15599
           POINT SOURCES          1077076         2109490          581722           16509           51671
        LIGNITE
           POINT SOURCES             9515           11079            6016             535            1885
```

Figure 2.1.2.a. Emissions Summary Report

RESIDUAL OIL					
AREA SOURCES	49115	401500	128126	6606	8542
POINT SOURCES	123013	978123	394334	22252	39955
DISTILLATE OIL					
AREA SOURCES	34812	74900	139247	6962	9283
POINT SOURCES	43885	208930	238629	11976	15766
NATURAL GAS					
AREA SOURCES	19602	1176	352837	5881	33323
POINT SOURCES	44375	52965	1348720	20019	103619
PROCESS GAS					
AREA SOURCES	62	6	713	93	0
POINT SOURCES	12600	128247	13686	834	8406
COKE					
POINT SOURCES	1016	1569	236	9	39
WOOD					
AREA SOURCES	1940	116	776	1552	1552
POINT SOURCES	260363	23307	153270	37822	178236
LIQUID PETROL GAS					
POINT SOURCES	286	18610	1939	56	253
BAGASSE					
POINT SOURCES	41745	0	5731	5762	5761
OTHER					
POINT SOURCES	9620	18578	2830	2999	7929
TOTAL (INDUSTRIAL)					
AREA SOURCES	976557	1123091	761776	28895	68711
POINT SOURCES	1632380	3353506	2571264	118815	413664
COMM-INSTITUTIONAL FUEL					
ANTHRACITE COAL					
AREA SOURCES	1163	3576	1327	27	796
POINT SOURCES	6728	2624	818	51	285
BITUMINOUS COAL					
AREA SOURCES	101876	163167	18986	4127	34839
POINT SOURCES	57771	95009	21593	1206	3583
LIGNITE					
POINT SOURCES	3761	2007	1062	85	225
RESIDUAL OIL					
AREA SOURCES	70631	539896	183733	9187	12849
POINT SOURCES	7760	70143	20701	1061	1387
DISTILLATE OIL					
AREA SOURCES	60703	128685	243134	12157	16809
POINT SOURCES	1466	7362	6151	315	487
NATURAL GAS					
AREA SOURCES	12238	736	146880	9791	26477
POINT SOURCES	3999	4971	23271	1535	3833
WOOD					
AREA SOURCES	58	3	23	46	46
POINT SOURCES	242	81	343	271	343
LIQUID PETROL GAS					
POINT SOURCES	3	1	23	2	3
OTHER					
POINT SOURCES	114	178	4060	130	21
TOTAL (COMM-INST)					
AREA SOURCES	268849	838861	596082	32334	[illegible]
POINT SOURCES	83024	183836	78230	4716	9481

Figure 2.1.2.a (continued). Emissions Summary Report

OTHER (POINT)	1	0	0	0	0
TOTAL (EXTERNAL COMB)					
AREA SOURCES	1459693	2462751	1701036	212053	641251
POINT SOURCES	5295824	23223775	9733198	211154	690882
INTERNAL COMBUSTION (POINT)					
ELECTRIC GENERATION					
DISTILLATE OIL	3706	16144	43416	2321	5717
NATURAL GAS	683	325	24896	2066	4862
DIESEL	1590	1069	11256	1285	5935
OTHER	174	311	2782	1157	103
TOTAL (ELEC GEN)	6153	17849	82350	6826	16617
INDUSTRIAL FUEL					
DISTILLATE OIL	522	751	4686	160	388
NATURAL GAS	1835	9839	248631	43920	28342
GASOLINE	8	4	164	259	2142
DIESEL FUEL	194	301	3373	993	867
OTHER	366	40	2438	933	398
TOTAL (INDUSTRIAL)	2925	10935	259293	46265	32276
ENGINE-TESTING					
AIRCRAFT	253	126	342	573	836
OTHER	1416	0	22	0	165
TOTAL (ENG TESTING)	1669	126	364	573	1001
OTHER (POINT)	46	351	0	0	0
TOTAL (INTERNAL COMB)	10793	29261	342007	53664	49974
TOTAL (FUEL COMBUSTION)					
AREA SOURCES	1459693	2462751	1701036	212053	641251
POINT SOURCES	5306617	23253036	10075205	264819	740856
INDUSTRIAL PROCESS (POINT)					
CHEMICAL MANUFACTURING	226916	699182	173348	1569763	3939678
FOOD/AGRICULTURAL	459164	3081775	716	36889	1397
PRIMARY METAL	1631693	3619980	18119	117527	8709525
SECONDARY METALS	163021	101097	19423	3597	1228686
MINERAL PRODUCTS	3065333	795510	193996	13445	36885
PETROLEUM INDUSTRY	1037235	2990149	3286981	1029697	4412017
WOOD PRODUCTS	423309	130083	19113	21528	873357
EVAPORATION	10061	2696	1078	3197585	6431
METAL FABRICATION	2352	1069	336	1699	0
LEATHER PRODUCTS	62	27	4	438	1
TEXTILE MANUFACTURING	716	38	24	9775	2
INPROCESS FUEL	74416	63721	31156	20832	371811
OTHER/NOT CLASSIFIED	11877	17676	7705	187598	900
TOTAL (INDUSTRIAL)	7088051	11422921	3750057	6130076	19439186

Figure 2.1.2.a (continued). Emissions Summary Report

```
SOLID WASTE DISPOSAL
********************

  GOVERNMENT (POINT)

      MUNICIPAL INCINERATION        53651        8881        7199       18372      106282
      OPEN BURNING                  22665        1385        8362       44085      119517
      OTHER                           887         122         232         390        1612
      TOTAL (GOVERNMENT)            77203       10388       15794       62867      227192

  RESIDENTIAL (AREA)

      ON SITE INCINERATION          96548        1509        3017      271542      816430
      OPEN BURNING                 223367       13960       83763      418814     1184838
      TOTAL (RESIDENTIAL)          319916       15469       86780      690356     2001268

  COMMERCIAL-INSTITUTIONAL

      ON SITE INCINERATION
          AREA SOURCES              44040       13763       16515       27525       63307
          POINT SOURCES              1408         856        1012        1633       13152

      OPEN BURNING
          AREA SOURCES              21716        1357        8143       40718      115366
          POINT SOURCES              1450           1         171         365        4270
      APARTMENT
          POINT SOURCES                24           1          10          12          21
      OTHER
          POINT SOURCES                48           0          24           0           0
      TOTAL (COMM-INST)
          AREA SOURCES              65756       15120       24658       68243      178674
          POINT SOURCES              2931         858        1217        1990       17544

  INDUSTRIAL

      ON SITE INCINERATION
          AREA SOURCES              18703        5865        7016       11689       26886
          POINT SOURCES             38317       31970       10466       65299     5108722
      OPEN BURNING
          AREA SOURCES              17790        1112        6671       33356       94507
          POINT SOURCES             10398         336        2438       35733       60432
      AUTO BODY INCINERATION
          POINT SOURCES               101           0           4          32          99
      OTHER
          POINT SOURCES              3800        5741         527         276         471
      TOTAL (INDUSTRIAL)
          AREA SOURCES              36492        6976       13685       45045      121393
          POINT SOURCES             72615       28053       13635      101337     5300723

  OTHER (POINT)                        26           0           0           0           0

  TOTAL (SOLID WASTE DISP)

      AREA SOURCES                 422166       37545      125123      803863     2301331
      POINT SOURCES                152775       39300       30446      108874     3434429

TRANSPORTATION (AREA)
```

Figure 2.1.2.a (continued). Emissions Summary Report

```
-----------------------

  LAND VEHICLES

     GASOLINE

          LIGHT VEHICLES              668445        172730       5669262       9634758      52789926
          HEAVY VEHICLES               63456         24879        706630       1035126      10306437
          OFF HIGHWAY                  19935         10433        227380        640911       7266641
          TOTAL (GASOLINE)            751836        208043       6603272      11310795      70363004

     DIESEL

          HEAVY VEHICLES               84754        118455       1074240        136723        610096
          OFF HIGHWAY                  49812         44576        551967         60432        155568
          RAIL                         57231        130686        847015        213188        297600
          TOTAL (DIESEL)              191796        293717       2473222        410343       1063263

  AIRCRAFT

       MILITARY                       154806         29561         74389        360177        388426
       CIVIL                           10266          2039          9273         43465        259080
       COMMERCIAL                       5568          8043         77957        104397        211209
       TOTAL (AIRCRAFT)               170640         39643        161600        508039        857716

  VESSELS

       BITUMINOUS COAL                  1273          3163           191          1273          5729
       DIESEL FUEL                     18459         23076        172284         45325         60899
       RESIDUAL OIL                     4973         73882         10770           747           361
       GASOLINE                            0          2136          9290        315664       1003551
       TOTAL (VESSELS)                 24705        102257        192535        362889       1069940

  GAS HANDLING EVAP LOSS                   0             0             0       1194082             0

  TOTAL (TRANSPORTATION)             1138975        643480       9430630      13788146      73351626

MISCELLANEOUS (AREA)
--------------------

  FOREST FIRE/AGRIC BURNING           219573             0         51664        309985       1808849
  STRUCTURAL FIRES                       338             0            54           134          1613
  SLASH BURNING                       241813             0         28425        286231        852752
  FROST CONTROL                            7             0             0          1536           786
  SOLVENT EVAPORATION LOSS                 0             0             0       1568383             0
  TOTAL (MISCELLANEOUS)               461731             0         80143       2164290       2663399

OTHER (POINT)                            299           132            86           554             5
-------------

GRAND TOTAL
-----------

  AREA SOURCES                       3468343       3143786      11328931      16998722      78957485
  POINT SOURCES                     13390843      34715386      13859795       6840131      25840604
  TOTAL                             16859186      37859172      25188726      23838853     104798089
```

Figure 2.1.2.a (continued). Emissions Summary Report

2.1.2.2 AREA SOURCE FUEL USAGE REPORT

2.1.2.2.1 GENERAL DESCRIPTION

The "Area Source Fuel Usage Report" presents a summary by use category of the amount of fuel used within each county requested. The use categories considered are residential, commercial-institutional, and industrial. Each use category is subdivided into fuel types. Residential and commercial-institutional fuels are divided into the following fuel types: anthracite coal, bituminous coal, distillate oil, residual oil, natural gas, and wood. In addition to the aforementioned fuel types, coke and process gas are also considered under the heading of industrial fuel.

A total of the entire amount of fuel used is printed for each state, with subtotals printed for each fuel type.

2.1.2.2.2 RETRIEVALS AVAILABLE

Retrieval is by state only.

2.1.2.2.3 SAMPLE REPORT

A sample "Area Source Fuel Usage Report" for the State of Rhode Island is presented in Figure 2.1.2.b. Although all three use categories are presented on a single page in this figure, in the actual computer output each use category starts on a new computer page.

```
                                 NATIONAL EMISSIONS DATA SYSTEM (NEDS)                                        PAGE 1
                                   ENVIRONMENTAL PROTECTION AGENCY                                          DATE 05/06/75

                                     AREA SOURCE FUEL USAGE REPORT
                                     *****************************
                                                                        UPDATE DATE     WEDNESDAY           MARCH 12, 1975
STATE: RHODE ISLAND
******
                                           RESIDENTIAL FUEL
                                           ****************

                      ANTH. COAL   BITUM. COAL    DIST. OIL    RESID. OIL    NAT. GAS        WOOD
                       10 TONS       10 TONS    10,000 GALS.  10,000 GALS.  10E7 CUFT      100 TONS
                      **********   ***********  ************  ************  *********      ********

     ***COUNTY***
BRISTOL                    15                       1034                          65              2
KENT                       63                       3346                         172              3
NEWPORT                                             2018                          64              2
PROVIDENCE                172                      13667                        1028             11
WASHINGTON                 43                       1769                          62              4

     TOTAL RESIDENTIAL -  293                      21834                        1309             22
                                     COMMERCIAL AND INSTITUTIONAL                                             Page 2
                                     ****************************

                      ANTH. COAL   BITUM. COAL    DIST. OIL    RESID. OIL    NAT. GAS        WOOD
                       10 TONS       10 TONS    10,000 GALS.  10,000 GALS.  10E7 CUFT      100 TONS
                      **********   ***********  ************  ************  *********      ********

     ***COUNTY***
BRISTOL                     4            3           168           380          23
KENT                       13            8           646          1896          72
NEWPORT                     9            6           402           913          48
PROVIDENCE                 56           35          5138         11117         296
WASHINGTON                  8            5           367           833          44

     TOTAL COMMERCIAL  -   90           57          6921         15139         483
                                            INDUSTRIAL FUEL                                                   Page 3
                                            ***************

                      ANTH. COAL   BITUM. COAL    DIST. OIL    RESID. OIL    NAT. GAS        WOOD      COKE      PROCESS GAS
                       10 TONS       10 TONS    10,000 GALS.  10,000 GALS.  10E7 CUFT      100 TONS   10 TONS     10E7 CUFT
                      **********   ***********  ************  ************  *********      ********   *******    ***********

     ***COUNTY***
BRISTOL                                 36           285           295          17
KENT                                    73          1308          1441          35
NEWPORT                                 15            37            68           7
PROVIDENCE                             522          4262          4482         251
WASHINGTON                              40           132           137          19

     TOTAL INDUSTRIAL  -               685          6104          6335         329

TOTAL USAGE FOR STATE  -  383          743         34859         21476        2201             22
```

Figure 2.1.2.b. Area Source Fuel Usage Report

2.1.2.3 ANNUAL FUEL SUMMARY REPORT

2.1.2.3.1 GENERAL DESCRIPTION

The "Annual Fuel Summary Report" summarizes fuel use by fuel type for both point and area sources in a specific geographic area. The area source fuel use data are reported for both stationary and mobile area sources. Stationary source fuel use is further subdivided into residential, industrial, and commercial-institutional categories. Mobile source fuel use is reported for light and heavy highway vehicles (farm machinery, construction equipment, etc.) and vessels. The point source fuel use is broken down according to the kind of equipment in which the fuel is consumed--either external combustion equipment (boilers), internal combustion engines, or inprocess fuel use (dryers, furnaces, etc.). External and internal combustion categories are subdivided into electric utility, industrial, and commercial-institutional portions. Inprocess fuel use is all by industrial sources. The fuel types included are anthracite and bituminous coal, residual and distillate oil, natural gas, wood/bark, gasoline, diesel fuel, lignite coal, coke, bagasse, industrial process gas, liquified petroleum gas, jet fuel, solid waste, and liquid waste.

The date of file creation is included at the beginning of each report. Subtotals are printed for area and point sources, and a grand total is given for each fuel. Either English or metric units of measurement may be selected.

2.1.2.3.2 RETRIEVALS AVAILABLE

The retrieval keys for the "Annual Fuel Summary Report" are as follows:

a. Nation
b. State
c. County
d. AQCR

2.1.2.3.3 SAMPLE REPORT

A sample "Annual Fuel Summary Report" is presented in Figure 2.1.2.c.

```
                                     ***NEDS ANNUAL FUEL SUMMARY REPORT***
NATICNAL REPORT                                              USER FILE CREATE DATE: SATURDAY  DECEMBER C6, 1975
                                                             DATE CF RUN: C1/C9/76

                   ANTH CCAL     BITM COAL     RESID OIL     DIST OIL      NAT GAS       WOOD/BARK     GASOLINE      DIESEL
                 ************* ************* ************* ************* ************* ************* ************* *************
                     TONS          TONS        1CC0 GALS     1CCE GALS     1CE6 CUFT       TONS        1000 GALS     1CCC GALS
AREA SOURCES
  STATIONARY
    RESIDENTIAL      2076940       5187346        81973C      14757640      56C969C       4673800
    INDUSTRIAL         1144C      1612218C       4271170       464911C       396762C        1575CC
    COMM-INSTL        26538C       4122730       5019150       7518250       2446390          4700
  MCBILE
    LIGHT VEHICLE                                                                                      83667348
    HEAVY VEHICLE                                                                                       7856729       7699684
    RAILROAD                                                                                                          457306C
    OFF-HIGHWAY                                                                                         3741866       299686C
    VESSELS           12731C                      51268C                                                 E87196       154779C

    AREA TOTAL       328107C     25432225C     11422730C      26917C00      1202370C       4836CCC      95947139      16817394
POINT SOURCES
  EXT COMB
    ELEC GEN         4241402     386863C97     2C377090        86C528       4257339        45271C
    INDUSTRIAL        665326      51658794       8538821       2788187       4583433      33949879
    COMM-INSTL         97274       3017785        699386        231915       9842916        134915

  INPROCESS           373726       51C9129       1272564       1780252       3618379        978971

  INTERNL COMB
    ELEC GEN                                                 1C78C42        388229                                     70593
    INDUSTRIAL                                        13         33C12       1215881                          2C61        9171C
    COMM-INSTL

    POINT TOTAL      5377324     446648765      30886874       6749536      23534193      35116276          2C61       1C23C3

    GRAND TOTAL      8650798     4728C1015      42300604      33666936      35097093      39952276      96049300      16878687

                   LIGNITE       CCKE          BAGASSE       PROCESS GAS   LIQ-PETRO     JET FUEL      SOLID WASTE   LIQUID WASTE
                 ************* ************* ************* ************* ************* ************* ************* *************
                     TONS          TONS          TONS        1CE6 CUFT     1CCC GALS     1CCC GALS         TONS      1CCC GALS
POINT SOURCES
  EXT COMB
    ELEC GEN         8010397         40172                        4C564
    INDUSTRIAL       1142527       1C8042        752C107       2C88499        279285                      2C1219
    COMM-INSTL        161511                                                    4949

  INPROCESS                        2939671                     1C576559         85581

  INTERNL COMB
    ELEC GEN                                                                                    699
    INDUSTRIAL                                                                                  137
    COMM-INSTL

    GRAND TOTAL      9322435       3C87885       7520107      12705843        329819            836       2C1219
```

Figure 2.1.2.c. Annual Fuel Summary Report

2.1.2.4 PLANT EMISSION SUMMARY REPORT

2.1.2.4.1 GENERAL DESCRIPTION

The "Plant Emission Summary Report" lists the name, identifying geographic data, and criteria pollutant emissions for each plant in the region requested. For each of the five criteria pollutants, emission totals are printed, as well as subtotals for fuel combustion and process emissions. If the emissions totals are different from the sum of fuel combustion and process emissions, the difference is the plant solid waste emissions.

2.1.2.4.2 RETRIEVALS AVAILABLE

The retrieval keys for the "Plant Emission Summary Report" are nation, state, state/county, and AQCR.

2.1.2.4.3 SORTS AVAILABLE

The "Plant Emission Summary Report," if selected by nation, state, or state/county, can be sorted by state/county/plant codes. If selected by AQCR, the sort is by descending order of pollutant emission for any one of the five criteria pollutants.

2.1.2.4.4 SAMPLE REPORT

A sample page from the "Plant Emission Summary Report" retrieved for the Air Quality Control Region of Metropolitan Providence is presented in Figure 2.1.2.d.

```
                                   ***PLANT EMISSIONS REPORT (TONS/YR)***          UPDATE DATE     FRIDAY      JANUARY 10, 1975
STATE COUNTY PLANT AQCR                  PLANT NAME AND ADDRESS                         PART     SOX       NOX       HC       CO
***** ****** ***** ****                  **********************                         ****     ***       ***       **       **

 22    2121  0061  120  NEW ENGLAND POWER-BRAYTON PT, SOMERSET  PROC                      0        0         0        0        0
                                                                COMB                   1050    63401     21201      406      685
                                                                TOT                    1050    63401     21201      406      685

 41    0320  0042  120  PROVIDENCE INCINERATOR, PROVIDENCE      PROC                      0        0         0        0        0
                                                                COMB                      0        0         0        0        0
                                                                TOT                     986       75        60       45     1050

 22    2121  0054  120  CANAL ELECTRIC, SANDWICH                PROC                      0        0         0        0        0
                                                                COMB                    650    30958      8531      163      264
                                                                TOT                     650    30958      8531      163      264

 22    2121  0060  120  MONTAUP ELECTRIC CO, SOMERSET           PROC                      0        0         0        0        0
                                                                COMB                    577    34129      7576      166      216
                                                                TOT                     577    34129      7576      166      216
```

Figure 2.1.2.d. Plant Emission Report

2.1.2.5 SCC EMISSIONS REPORT

2.1.2.5.1 GENERAL DESCRIPTION

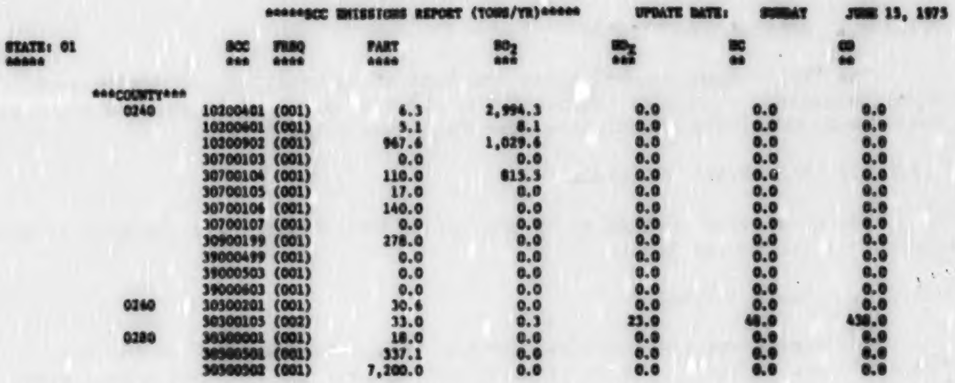
For each state, the "SCC Emission Report" prints one line listing the total emissions in tons per year for each of the five criteria pollutants by county number and SCC category. The update date and the number of sources included in each SCC category in each county are also included.

2.1.2.5.2 RETRIEVALS AVAILABLE

The "SCC Emission Report" may be retrieved only for the nation.

2.1.2.5.3 SAMPLE REPORT

A sample "SCC Emission Report" for the first few counties of Alabama is presented in Figure 2.1.2.e.



```
                          *****SCC EMISSIONS REPORT (TONS/YR)*****        UPDATE DATE:    SUNDAY     JUNE 15, 1975

STATE: 01                  SCC    FREQ          PART            SO2             NO2             HC             CO
*****                      ***    ****          ****            ***             ***             **             **

              ***COUNTY***
                 0240     10200401 (001)          6.3         2,994.3             0.0            0.0            0.0
                          10200601 (001)          5.1             8.1             0.0            0.0            0.0
                          10200902 (001)        967.6         1,029.6             0.0            0.0            0.0
                          30700103 (001)          0.0             0.0             0.0            0.0            0.0
                          30700104 (001)        110.0           815.5             0.0            0.0            0.0
                          30700105 (001)         17.0             0.0             0.0            0.0            0.0
                          30700106 (001)        140.0             0.0             0.0            0.0            0.0
                          30700107 (001)          0.0             0.0             0.0            0.0            0.0
                          30900199 (001)        278.0             0.0             0.0            0.0            0.0
                          39000499 (001)          0.0             0.0             0.0            0.0            0.0
                          39000503 (001)          0.0             0.0             0.0            0.0            0.0
                          39000603 (001)          0.0             0.0             0.0            0.0            0.0
                 0260     30300201 (001)         30.6             0.0             0.0            0.0            0.0
                          30300105 (002)         33.0             0.3            23.0           48.0          438.0
                 0280     30300001 (001)         18.0             0.0             0.0            0.0            0.0
                          30500501 (001)        337.1             0.0             0.0            0.0            0.0
                          30500502 (001)      7,200.0             0.0             0.0            0.0            0.0
```

Figure 2.1.2.e. SCC Emissions Report

2.1.2.6 PLANT NAME REPORT

2.1.2.6.1 GENERAL DESCRIPTION

The "Plant Name Report" gives one line of information concerning each plant requested. Included are plant ID, plant name, plant contact, a count of points and SCC's, UTM coordinates, and the plant comment field.

2.1.2.6.2 RETRIEVALS AVAILABLE

The retrievals available for the "Plant Name Report" are the same as those for the "Point Source Report."

2.1.2.6.2 SORTS AVAILABLE

The same sorts are available for the "Plant Name Report" as for the "Point Source Report." The printout of the former, however, has a page break on county so that it is desirable to begin each sort selected with state/county. The two sorts recommended for use with the "Plant Name Report" are:

State/County/Plant Name/Plant ID/Point ID/SCC
State/County/Plant ID/Point ID/SCC

The first step is an alphabetical ordering by plant name and the second a numerical ordering by plant ID. If one of the above sorts is not used, the plant name may appear several times and the SCC count may be incorrect.

2.1.2.6.4 SAMPLE REPORT

A sample "Plant Name Report" for the State of Rhode Island and the County of Providence is presented in Figure 2.1.2.f—sorted by plant name.

```
FILE CREATED ON WEDNESDAY        MARCH 12, 1975                                                    PAGE 41-0001

                                  N A T I O N A L    E M I S S I O N S    D A T A    S Y S T E M

                   PLANT NAME LISTING FOR ALL PLANTS WITH SCC EMITTING >OR =             0 TONS PER YEAR OF PARTICULATE

STATE (41):  RHODE ISLAND                          COUNTY (0320): PROVIDENCE CO

PLANT                                               PLANT      COUNT OF    UTM     COORD    P L A N T
 ID   P L A N T     N A M E                         CONTACT     PT SCC      X        Y                C O M M E N T

0016 BACCALA & SONS,100 ARMENTO ST,JOHNSTON        R.BACCALA      1  1    293.8    4636.0
0011 BIRD & SON, DEXTER ROAD,PHILIPSDALE,E PROVD   R.WILLIAMS     2  2    303.3    4634.2
0025 BLACKSTONE VALLEY PWR PLANT, PAWTUCKET        MR.STEELMACH  12 12    302.3    4637.5
0022 BRANCH RIVER WOOL,GREAT RD,N.SMITHFIELD       G.WARLOP       3  3    288.7    4657.4
0033 BROWN UNIVERSITY, PROVIDENCE                   MR REMY       1  3    300.5    4632.9
0032 BROWN&SHARPE,WATERMAN AVE,PROVIDENCE          GREENSLADE     1  2    299.0    4633.6
```

Figure 2.1.2.f. Plant Name Report

2.1.2.7 EMISSIONS/AIR QUALITY REPORT

2.1.2.7.1 GENERAL DESCRIPTION

The "Emissions/Air Quality Report" presents AQCR emissions and air quality data in the same report. The report heading includes the NEDS date of creation, the AQCR population and land area, and the priority of the AQCR for each of the five criteria pollutants. The report is then divided into two tables.

First, the total emissions in tons per year are printed for each of the five criteria pollutants, along with point source and area source emission subtotals. Then, in the air quality table, a line is printed giving air quality data for each of the years requested. These data include the number of stations used, the time intervals measured, the maximum value, and the maximum arithmetic or geometric mean for each of the five criteria pollutants.

2.1.2.7.2 RETRIEVALS AVAILABLE

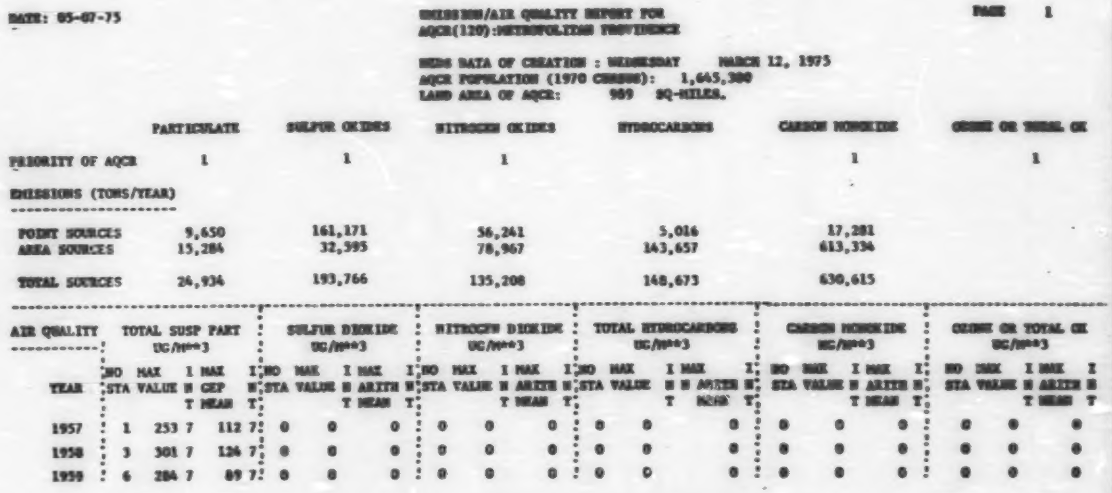
Retrievals by AQCR are available for the year span requested.

2.1.2.7.3 SORTS AVAILABLE

The output is sorted in the same sequence as requested.

2.1.2.7.4 SAMPLE REPORT

A sample "Emissions/Air Quality Report" for the AQCR, Metropolitan Providence, is presented in Figure 2.1.2.g.



```
DATE: 05-07-75                    EMISSION/AIR QUALITY REPORT FOR                          PAGE    1
                                  AQCR(120):METROPOLITAN PROVIDENCE

                                  NEDS DATA OF CREATION : WEDNESDAY      MARCH 12, 1975
                                  AQCR POPULATION (1970 CENSUS):    1,645,300
                                  LAND AREA OF AQCR:        989   SQ-MILES.

                 PARTICULATE     SULFUR OXIDES    NITROGEN OXIDES     HYDROCARBONS     CARBON MONOXIDE     OZONE OR TOTAL OX

PRIORITY OF AQCR      1                1                1                                    1                   1

EMISSIONS (TONS/YEAR)
---------------------

 POINT SOURCES     9,650          161,171           56,241             5,016             17,281
 AREA SOURCES     15,284           32,595           78,967           143,657            613,334

 TOTAL SOURCES    24,934          193,766          135,208           148,673            630,615

------------------------------------------------------------------------------------------------------------------------
AIR QUALITY  TOTAL SUSP PART  :   SULFUR DIOXIDE   :  NITROGEN DIOXIDE  :  TOTAL HYDROCARBONS  :   CARBON MONOXIDE   :  OZONE OR TOTAL OX
-----------:     UG/M**3      :      UG/M**3       :      UG/M**3       :       UG/M**3        :      MG/M**3        :      UG/M**3
           :NO  MAX   I MAX   I:NO   MAX    I MAX   I:NO  MAX    I MAX   I:NO  MAX     I MAX     I: NO  MAX    I MAX   I: NO  MAX    I MAX   I
   YEAR    :STA VALUE N GEP   N:STA  VALUE  N ARITH N:STA VALUE  N ARITH N:STA VALUE   N N ARITH N: STA VALUE  N ARITH N: STA VALUE  N ARITH N
           :          T MEAN  T:            T MEAN  T:           T MEAN  T:          T   MEAN  T:            T MEAN  T:            T MEAN  T
   1957    : 1   253 7   112 7:  0     0        0 :  0     0        0 :  0    0           0 :  0     0        0 :  0     0        0
   1958    : 3   301 7   124 7:  0     0        0 :  0     0        0 :  0    0           0 :  0     0        0 :  0     0        0
   1959    : 6   284 7    89 7:  0     0        0 :  0     0        0 :  0    0           0 :  0     0        0 :  0     0        0
```

Figure 2.1.2.g. Emission/Air Quality Report

EMISSIONS BY SCC REPORT

General Description

This report summarizes, by SCC, the calculated emissions for the five major pollutants (particulate, nitrogen oxides, sulfur oxides, hydrocarbons and carbon monoxide). All data selected are summarized by SCC and total emissions are provided for the four parts of each SCC. The report also gives the number of records for each SCC, for both complete SCC's and component parts, and total process throughput for each complete SCC (Parts I + II + III + IV).

Retrievals Available

Generally, only reports by nation, state, AQCR or county will be meaningful. Should the need exist, any of the following retrieval options are available:

a. State
b. AQCR
c. County
d. Plant
e. Point
f. Ownership Code
g. SIC
h. Emissions Estimation Method

i. SCC (I, I+II, I+II+III, I+II+III+IV)
j. Sources emitting more than x tons of any one pollutant
k. Any combinations of the above

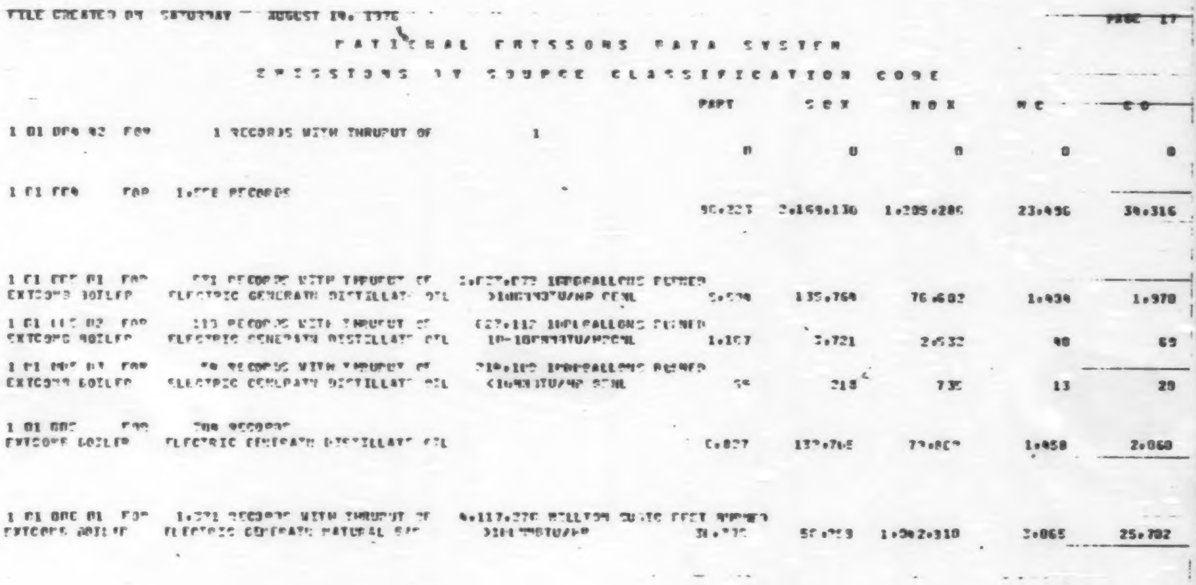
These retrievals are subject to the restrictions identified in 2.1.1 for the point source report.

Sorts Available

No sorts are applicable to this report.

Sample Report

A sample page of the Emissions by SCC Report is presented in Figure 2.1.2-h. A report request will generate multiple pages showing data for all SCC's in the specified area.



```
FILE CREATED ON  SATURDAY -- AUGUST [illegible] 1976                                                              PAGE  17
                              NATIONAL  EMISSIONS  DATA  SYSTEM
                      EMISSIONS  BY  SOURCE  CLASSIFICATION  CODE
                                                                        PART       SOX        NOX         HC        CO

1 01 004 02  FOR      1 RECORDS WITH THRUPUT OF          1
                                                                           0          0          0          0         0

1 01 004     FOR  1,[illegible] RECORDS
                                                                      90,223  2,159,130  1,205,206     23,496    34,316


1 01 005 01  FOR    [illegible] RECORDS WITH THRUPUT OF  [illegible] 1000GALLONS BURNED
EXTCOMB BOILER   ELECTRIC GENERATN DISTILLATE OIL     >100MMBTU/HR GENL     [illegible]    135,760     76,602      1,434     1,970
1 01 005 02  FOR    113 RECORDS WITH THRUPUT OF     627,112 1000GALLONS BURNED
EXTCOMB BOILER   ELECTRIC GENERATN DISTILLATE OIL     10-100MMBTU/HR GENL    1,157      3,721      2,632         98        69
1 01 005 03  FOR     [illegible] RECORDS WITH THRUPUT OF    210,[illegible] 1000GALLONS BURNED
EXTCOMB BOILER   ELECTRIC GENERATN DISTILLATE OIL     <10MMBTU/HR GENL        [illegible]        218        735         13        28

1 01 005     FOR    [illegible] RECORDS
EXTCOMB BOILER   ELECTRIC GENERATN DISTILLATE OIL                            [illegible]    [illegible]     [illegible]      1,458     2,060


1 01 006 01  FOR  1,[illegible] RECORDS WITH THRUPUT OF   4,117,270 MILLION CUBIC FEET BURNED
EXTCOMB BOILER   ELECTRIC GENERATN NATURAL GAS        >100MMBTU/HR        [illegible]     [illegible]  1,302,310      3,065    25,782
```

Figure 2.1.2.h. Emissions by SCC Report

POTENTIAL EMISSIONS REPORT

General Description

The potential emissions report produces a report and/or files of uncontrolled emissions, maximum controlled emissions, and maximum uncontrolled emissions. Either a full or summary report may be specified with the summarization of calculations at the level specified by the user. Summarization may be specified at any one of the following levels:

a. National
b. State
c. County (State/County)
d. AQCR
e. State/AQCR
f. Plant (State/County/Plant)

Emission values are computed as follows:

1) Uncontrolled emissions = CALCULATED EMISSIONS VALUE * (100/(100 - CONTROL EFFICIENCY)),
2) Maximum Controlled Emissions = CALCULATED EMISSIONS VALUE * RATIO WHERE RATIO = (MAXIMUM DESIGN RATE * HOURS-DAY * DAYS-WEEK * WEEKS-YEAR)/OPERATING RATE, and
3) Maximum Uncontrolled Emissions = UNCONTROLLED EMISSIONS * RATIO (See RATIO formula above).

Retrievals Available

The following retrieval options are available:

a. State
b. AQCR
c. County
d. Plant
e. Point
f. Ownership Code
g. SIC
h. Emissions Estimation Method
i. SCC (I, I+II, I+II+III, I+II+III+IV)
j. Sources emitting more than x tons of any one pollutant
k. Any combinations of the above.

There are only certain combinations of retrieval categories listed above that are valid. For example, the county code numbers are unique within each state but not across state boundaries. Thus, although no two counties in Arizona have the same county code number, 0040 is the county code number both for Apache County in Arizona and Arkansas County in Arkansas. As a result, retrieval by county is only meaningful when combined with retrieval by state.

In the same manner retrieval by plant requires specification of county and state identifiers; retrieval by point requires specification of plant, county, and state identifiers.

It should be noted that the same type of restriction applies to retrieval by SCC parts. Retrieval by SCC part IV is dependent on retrieval by SCC part III, retrieval by part III on retrievals by part II, etc.

Sorts Available

Subject to the same restrictions set forth for "Retrievals Available," the selected data can be sorted in ascending (a) or descending (d) sequence for any of the following data values:

a. State (a)
b. AQCR (a)
c. County (a)
d. Plant Number (a)
e. Point Number (a)
f. Source Classification Code (a)
g. Ownership (Federal, local government, utility, or all) (a)
h. Standard Industrial Classification (SIC) Code (a)
i. Emissions Estimation Method (a)
j. Plant Names in Alphabetical Order (a)
k. Amount of emissions for any one of the five criteria pollutants (d)
l. Year of Record (a)

m. Control Equipment (a)
n. Control Efficiency (d)
o. Fuel Sulfur Content (d)
p. Fuel Ash Content (d)
q. Major City Code (a)
r. UTM Coordinates (d)
s. Operating Rate (d)
t. Confidentiality (a)

The sort selected should coincide with the level of summarization requested. That is, if summarization by plant is requested, sorting by at least State/County/Plant, and preferably by State/County/Plant/Point/SCC should be performed. It is recommended that, in general, only sorts by items a-f and k be requested. Sorting by items g-j and l-t is possible but since those items do not appear on the report output, the report may appear confusing or in random order if this is done.

Example Output

A sample page of the Potential Emissions Report is presented in Figure 2.1.2.i.

```
TUESDAY  - APRIL 12, 1977  N A T I O N A L   E M I S S I O N   D A T A   S Y S T E M

                                                          MAXIMUM         MAXIMUM
                    CALCULATED     UNCONTROLLED         CONTROLLED     UNCONTROLLED
                     EMISSIONS        EMISSIONS          EMISSIONS        EMISSIONS   ST CNTY PLNT PT SCC-CODE
                     (TONS/YR)        (TONS/YR)          (TONS/YR)        (TONS/YR)

  PART                   9.625          962.500              9.567          956.725   GF 0040 0014 01 30500201
  SO2                    0.000            0.000              0.000            0.000
  NOX                    0.000            0.000              0.000            0.000
  HC                     0.000            0.000              0.000            0.000
  CO                     0.000            0.000              0.000            0.000

  PART                   0.000            0.000              0.000            0.000   GA 0040 0014 01 39000501
  SO2                    0.000            0.000              0.000            0.000
  NOX                    0.000            0.000              0.000            0.000
  HC                     0.000            0.000              0.000            0.000
  CO                     0.000            0.000              0.000            0.000

  PART                   0.655            0.655              2.547            2.547   GF 0040 0015 01 10200403
  SO2                    0.000            0.000              0.000            0.000
  NOX                    1.710            1.710              6.651            6.651
  HC                     0.065            0.085              0.336            0.330
  CO                     0.114            0.114              0.443            0.443

TOTALS FOR STATE - U8

  PART                 467.078        22525.644            640.147        50537.150
  SO2                 2812.896         2812.596           4426.072         4428.072



  NOX                 1152.969         1152.969           1639.372         1639.372
  HC                   783.200          783.200           1502.341         1502.341
  CO                    47.570           48.920             83.035           86.391

GRAND TOTALS

  PART                 467.076        22535.644            640.147        50837.150
  SO2                 2812.896         2812.596           4428.072         4428.072
  NOX                 1152.969         1152.969           1639.372         1639.372
  HC                   783.200          783.200           1502.341         1502.341
  CO                    47.570           48.920             83.035           86.391
```

Figure 2.1.2.i. Potential Emissions Report

2.1.3.1 PLANT-POINT-SCC COUNT REPORT

2.1.3.1.1 GENERAL DESCRIPTION

The "Plant-Point-SCC Count Report" is available on a nationwide basis only. For each "state" this report lists the state code, state name, and total number of plants, plant-points, and plant-point-SCCs. The "states" themselves are listed in ascending numerical order according to state code number. A grand total of plants, plant-points, and plant-point-SCCs is printed at the end. A sample "Plant-Point-SCC Count Report" is presented in Figure 2.1.3.a.

```
05/07/75
                                   NATIONAL EMISSIONS DATA SYSTEM                                  PAGE:  1
ST   STATE
NO                      TOTAL NUMBER        TOTAL NUMBER        TOTAL NUMBER
                           PLANTS           PLANT-POINTS       PLANT-POINT-SCC
-------------------------------------------------------------------------------------------------------
01   ALABAMA
02   ALASKA                 361                1,736               2,769
03   ARIZONA                178                  267                 410
04   ARKANSAS               361                  509               1,201
                            236                  689                 813
     GRAND TOTAL
                         30,127
                                              83,202             100,230
```

Figure 2.1.3.a. Plant-Point-SCC Count Report

2.1.3.2 MISSING ITEM REPORT

2.1.3.2.1 GENERAL DESCRIPTION

The "Missing Item Report" is a point source inventory of missing data items. Seven geographical summarization types are available. They are as follows:

a. National
b. State
c. State/County
d. AQCR
e. State/AQCR
f. State/County/Plant
g. State/County/Plant/Point

This report presents a count of the missing items according to the summarization type requested. Any data can be selected to be summarized based on the point source selection capability. After the data are selected, they can be summarized using any of the above report types. For example, all boilers could be selected and summarized by state to determine the number of boilers and data available for boilers. In addition to totals for the number of plants, points and SCCs present, totals are printed to indicate the confidentiality status of processes and plants.

Figure 2.1.3.b is a "Missing Item Report" for the State of Massachusetts.

```
                            NATIONAL EMISSIONS DATA SYSTEMS                                PAGE: 1

                          POINT SOURCE INVENTORY - INCOMPLETE DATA ITEMS
DATE:      MAY 08, 1975                                  FILE CREATED ON:  WEDNESDAY              MARCH 12, 1975
STATE (22) :  MASSACHUSETTS

                                  MISSING DATA ITEMS
                            THE COUNTS BELOW APPLY TO CORRESPONDING DATA FIELDS
                            FOR EACH NEDS POINT SOURCE FORM SUBMITTED FOR THIS
                            GEOGRAPHICAL AREA.  THERE ARE     1418 POINTS REPORTING
                            IN THIS AREA.
   DATA ITEM                # MISSING    DATA ITEM                # MISSING      DATA ITEM                # MISSING

   CARD #1                               CARD #4                                 CARD #5
    YEAR OF RECORD               0        YEAR OF RECORD               0          YEAR OF RECORD               0
    CITY                         1        ANNUAL THROUGHPUT                       ALLOWABLE  EMISS.
    UTM ZONE                     1         DEC-FEB                    22           PART.                     611
    NAME AND ADDRESS             0         MAR-MAY                    22           SOX                       542
    CONTACT-PERSONAL            11         JUNE-AUG                   23           NOX                       733
    OWNERSHIP                    6         SEPT-NOV                   23           HC                        733
   CARD #2                                NORMAL OPERATING                         CO                        733
    YEAR OF RECORD               0         HOURS/DAY                  25          COMPL. STATUS              731
    SIC                          0         DAYS/WEEK                  23          COMPL. SCHEDULE
    UTM-HORIZONTAL              24         WEEKS/YEAR                 25           YEAR                      732
    UTM-VERTICAL                24        EMISSION ESTIMATE                        MONTH                     732
    STACK DATA                             PART.                     267          COMPL. STATUS UPD.
     HEIGHT                      3         SOX                       298           YEAR                      733
     DIAMETER                    2         NOX                       322           MONTH                     733
     TEMPERATURE                 8         HC                        307           DAY                       733
     FLOW RATE                   0         CO                        312          ECAP                       740
     PLUME HEIGHT                1        ESTIMATION METHOD                      CARD #6
   CARD #3                                 PART.                       7          YEAR OF RECORD               0
    YEAR OF RECORD               0         SOX                        15          OPERATING RATE              70
    BOILER DESIGN CAP            0         NOX                        39          MAX. DESIGN RATE          1355
    CONTROL EQUIPMENT            0         HC                         37          SULFUR CONTENT               3
     PRIMARY PART.               0         CO                         31          ASH CONTENT                  8
     SECONDARY PART.             0        % SPACE HEAT                 6          HEAT CONTENT                 5
     PRIMARY SOX                 0                                                SOURCE                       1
     SECONDARY SOX               0
     PRIMARY NOX                 0
     SECONDARY NOX               0            NUMBER OF PLANTS IN NEDS:                                      896
     PRIMARY HC                  0            NUMBER OF POINTS WITHIN THE PLANTS ABOVE:                     1418
     SECONDARY HC                1            NUMBER OF PROCESSES(SCC'S) WITHIN THE POINTS ABOVE:           1642
     PRIMARY CO                  0
     SECONDARY CO                0
    EST. CONTROL EFF.                         CONFIDENTIALITY STATUS:
     PART.                       0            NUMBER OF PROCESSES DESIGNATED CONFIDENTIAL:                     0
     SOX                         0            NUMBER OF PROCESSES DESIGNATED NON CONFIDENTIAL:              1642
     NOX                         0            NUMBER OF PROCESSES WITH CONFIDENTIALITY UNKNOWN:                0
     HC                          3            NUMBER OF PLANTS WITH CONFIDENTIAL PROCESSES:                    0
     CO                          0
```

Figure 2.1.3.b. Missing Item Report

2.1.3.3 HIGHEST PLANT NUMBER BY COUNTY REPORT

2.1.3.3.1 GENERAL DESCRIPTION

The "Highest Plant Number by County Report" gives the number of the last plant updated in each county and thus the last included in the NEDS file. The counties are listed in alphabetical order by state; the states themselves are listed in ascending order of state code. In each case, the state and county code numbers are provided in addition to their names. The output from this report is used to assist in assigning new plant numbers. Figure 2.1.3.c presents that portion of the "Highest Plant Number by County Report" for the first seven counties in the State of Alabama.

```
FILE CREATED ON  TUESDAY          APRIL 15, 1975

                 NATIONAL EMISSIONS DATA SYSTEM
                        SOURCE INVENTORY
                 HIGHEST PLANT NUMBER BY COUNTY

           STATE              COUNTY                        PLANT  ID

          ALABAMA            AUTAUGA                  01  0240  0002
                             BALDWIN                  01  0260  9007
                             BARBOUR                  01  0280  0013
                             BIBB                     01  0360  0007
                             BLOUNT                   01  0400  0002
                             BULLOCK                  01  0520  9004
                             BUTLER                   01  0540  9001
```

Figure 2.1.3.c. Highest Plant Number by County Report

The SOTDAT System is one of the newer members of AEROS. It was designed to store and retrieve relevant technical data acquired during the performance of stack tests or other methods of measuring pollutant emissions from point sources.

The original purpose of SOTDAT was to provide an automated means of updating and improving emission factors for specific Source Classification Codes (SCC's) in the NEDS Emission Factor File, and this remains its principal use although other applications have been added recently.

2.2.1.1 LISTING OF COMPLETE SOTDAT FILE

2.2.1.1.1 GENERAL DESCRIPTION

The type of information stored in the SOTDAT file and the input form are shown in Figure 2.2.1.a. The output of this report consists of a full listing of the SOTDAT Master File. The report can also be produced by using the update information that is generated each time new data are to be introduced into the SOTDAT system. Most of the codes used in the SOTDAT input and output procedures are derived, either directly or with some modification, from the appropriate NEDS and SAROAD codes as given in Volume V of the AEROS Manual. Some instructions developed for the SOTDAT system are described in greater detail in Volume II.

The form of the report may be seen by referring to Figure 2.2.1.b. It should be noted that it is quite easy to develop program modifications of this report because a considerable degree of flexibility was built into the system. Thus, although the example shows a two-page report with a given format, additional formats are under development.

2.2.1.1.2 RETRIEVALS AVAILABLE

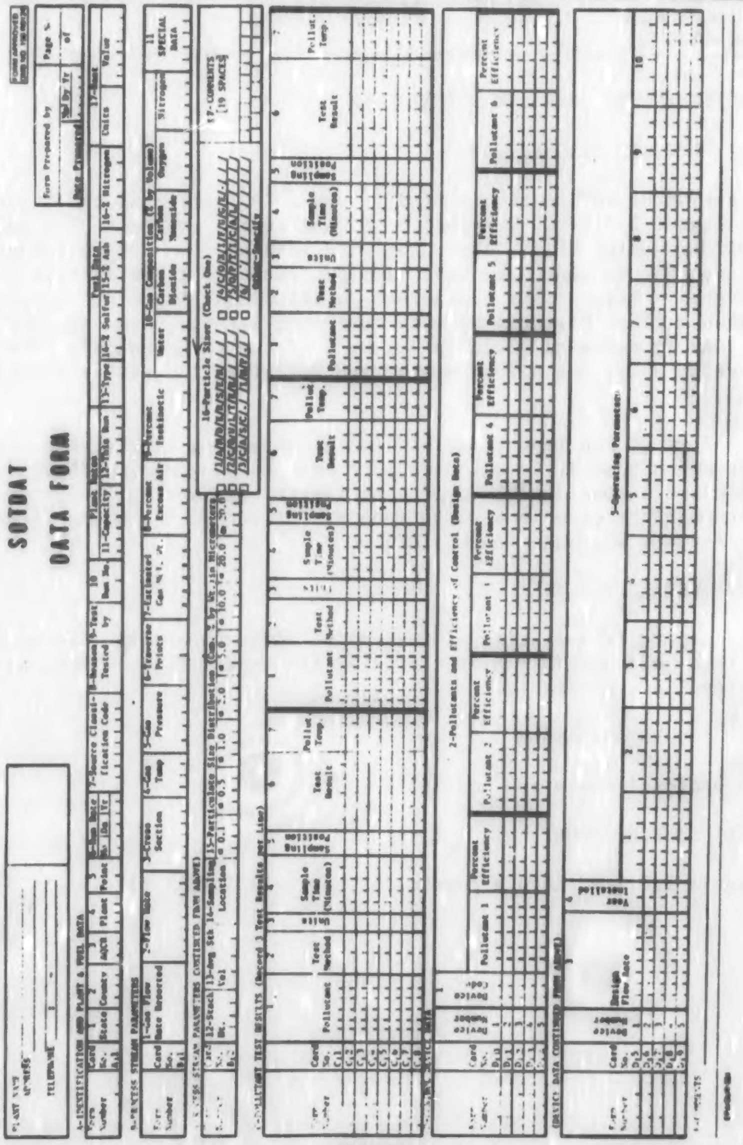
The report is a listing of the entire contents of the file accessed, whether this be the SOTDAT Master File or the update file. Thus, no options for retrieval are available.

2.2.1.1.3 SORTS AVAILABLE

No optional sorts are available to the user.

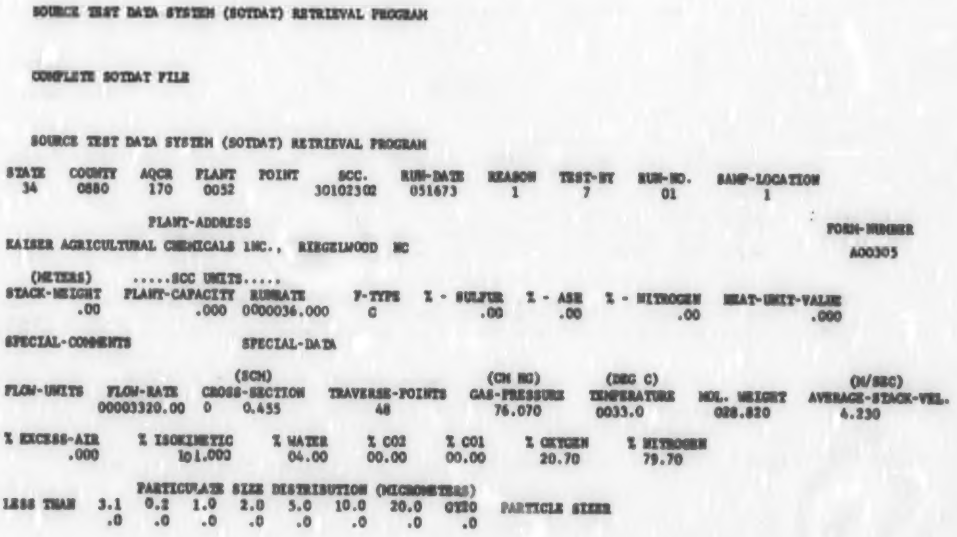
2.2.1.1.4 SAMPLE REPORT

Figure 2.2.1.b shows a portion of the full SOTDAT file listing.



SOTDAT DATA FORM

Figure 2.2.1.a. SOTDAT Input Data Format



```
   SOURCE TEST DATA SYSTEM (SOTDAT) RETRIEVAL PROGRAM


   COMPLETE SOTDAT FILE


   SOURCE TEST DATA SYSTEM (SOTDAT) RETRIEVAL PROGRAM
STATE   COUNTY   AQCR   PLANT   POINT      SCC.     RUN-DATE   REASON   TEST-BY   RUN-NO.   SAMP-LOCATION
 34      0880     170    0052            30102302    051673       1         7        01           1

                 PLANT-ADDRESS                                                                              FORM-NUMBER
KAISER AGRICULTURAL CHEMICALS INC.,  RIEGELWOOD  NC                                                           A00305

  (METERS)      .....SCC UNITS.....
STACK-HEIGHT   PLANT-CAPACITY  RUNRATE       F-TYPE   % - SULFUR   % - ASH   % - NITROGEN   HEAT-UNIT-VALUE
        .00               .000 0000036.000     C              .00       .00            .00              .000

SPECIAL-COMMENTS                SPECIAL-DATA

                              (SCM)                                (CM HG)        (DEG C)                          (M/SEC)
FLOW-UNITS   FLOW-RATE   CROSS-SECTION    TRAVERSE-POINTS    GAS-PRESSURE   TEMPERATURE   MOL. WEIGHT   AVERAGE-STACK-VEL.
           00003320.00  0     0.455              48              76.070        0033.0        028.820           4.230

% EXCESS-AIR      % ISOKINETIC      % WATER     % CO2      % CO1      % OXYGEN     % NITROGEN
        .000           101.000        04.00      00.00      00.00       20.70         79.70

                  PARTICULATE SIZE DISTRIBUTION (MICROMETERS)
LESS THAN   3.1   0.2   1.0   2.0   5.0   10.0   20.0   GT20   PARTICLE SIZER
             .0    .0    .0    .0    .0     .0     .0     .0
```

Figure 2.2.1.b. Full Listing of the SOTDAT File

```
POLLUTANT   TEST-METHOD   POL UNIT   SAMPLE-TIME   SAMPLING-POSITION   POL TEMP   TEST-RESULT
 A11010         10           0        00113.00             0             030.0    00     .09494
 B11010         10           0        00113.00             0             030.0    00     .06211
                10           0             .00             0                .0           .00000
 C00000         00           0        00000.00             0             000.0    000000.00000
 D00000         00           0        00000.00             0             000.0    000000.00000

DEVICE - :     DEVICE-CODE     DESIGN-FLOW-RATE      YEAR-INSTALLED
   0              000          00000000.0000000            00
   0              000          00000000.0000000            00

DEVICE - :  POLL-1 EFFCY  POLL-2 EFFCY  POLL-3 EFFCY  POLL-4 EFFCY  POLL-5 EFFCY  POLL-6 EFFCY
   0        000000 00.00  000000 00.00  000000 00.00  000000 00.00  000000 00.00  000000 00.00
   0        000000 00.00  000000 00.00  000000 00.00  000000 00.00  000000 00.00  000000 00.00

DEVICE - :  OP-PARM1  OP-PARM2  OP-PARM3  OP-PARM4  OP-PARM5  OP-PARM6  OP-PARM7  OP-PARM8  OP-PARM9  OP-PARM10
   0        000000.00 000000.00 000000.00 000000.00 000000.00 000000.00 000000.00 000000.00 000000.00 000000.00
   0        000000.00 000000.00 000000.00 000000.00 000000.00 000000.00 000000.00 000000.00 000000.00 000000.00

                                          COMMENTS
        ANALYZED BY E.P.A.
```

Figure 2.2.1.b (continued). Full Listing of the SOTDAT File

2.2.1.2 LISTING OF SOTDAT FILE BY SPECIFIED SCC

2.2.1.2.1 GENERAL DESCRIPTION

The format of this report is identical to that of the report previously described - the complete SOTDAT Master File Listing (see 2.2.1.1). This report, however, includes data only for those Source Classification Codes (SCC) specified in the request. Up to 25 SCC's may be specified. All of the plants and points pertaining to a given SCC are grouped together in the report, followed by those for the next SCC, and so on. Other output formats are being developed to assist the user.

2.2.1.2.2 RETRIEVALS AVAILABLE

As explained above, this report is retrieved by SCC. No optional retrievals are available.

2.2.1.2.3 SORTS AVAILABLE

The report is sorted by SCC. Within SCC, the sort is by State, County, Plant, Point, and Run Number. No optional sorts are available.

2.2.1.2.4 SAMPLE REPORT

The report format is identical to that of the SOTDAT Master File Listing, which is shown in Figure 2.2.1.b.

2.2.1.3 NAME, ADDRESS, AND FORM NUMBERS FOR EACH PLANT ON FILE

2.2.1.3.1 GENERAL DESCRIPTION

This report lists the names, addresses, telephone numbers, and NEDS source identification codes of all plants in the entire SOTDAT file. For each plant, the SOTDAT Form Numbers are listed in order. The overall sequencing is by NEDS ID number. If one or more point numbers exist for a given plant, that information will also appear in the printout.

2.2.1.3.2 RETRIEVALS AVAILABLE

As with the complete SOTDAT File Listing, the entire file is printed out; thus, no optional retrievals are available currently.

2.2.1.3.3 SORTS AVAILABLE

The report is sorted by NEDS ID number and printed in that sequence. No options are now available.

2.2.1.3.4 SAMPLE REPORT

Figure 2.2.1.c shows a portion of the "Name, Address, and Form Number" listing.

```
SOURCE TEST DATA SYSTEM (SOTDAT) RETRIEVAL PROGRAM

    KAISER AGRICULTURAL CHEMICALS INC                          STATE:   34                SPECIAL COMMENTS:
                                                               COUNTY:  0830
                                                               AQCR:    170
                                                               PLANT:   0052
                                                               POINT:                     FORM NUMBER  :  A00303
                                                                                          FORM NUMBER  :  A00306
                                                                                          FORM NUMBER  :  A00308
                                                                                          FORM NUMBER  :  A00309

SOURCE TEST DATA SYSTEM (SOTDAT) RETRIEVAL PROGRAM

    PHILLIPS PETROLEUM CO                                      STATE :   37               SPECIAL COMMENTS :
                                                               COUNTY  : 3720
                                                               AQCR :    124
                                                               PLANT :   0046
                                                               POINT :                    FORM NUMBER : A00163
                                                                                          FORM NUMBER : A00167
                                                                                          FORM NUMBER : A00164
                                                                                          FORM NUMBER : A00168
```

Figure 2.2.1.c. Name, Address and Form Numbers for each Plant on File

2.2.2.1 EMISSION FACTORS FOR SPECIFIED POLLUTANTS

2.2.2.1.1 GENERAL DESCRIPTION

This report presents the SOTDAT emission factors for all plants in the SOTDAT file that are sources of the pollutant or pollutants specified. Also included are the appropriate emission rates for each plant-pollutant combination. Up to 25 pollutant codes may be specified in the request.

2.2.2.1.2 RETRIEVALS AVAILABLE

This report is retrieved by the pollutant types selected. No other retrievals are possible.

2.2.2.1.3 SORTS AVAILABLE

The primary sort is by pollutant, followed by the SCC type, then by the NEDS ID (State, County, Plant, and Point), followed by the run date and run number. No options are available.

2.2.2.1.4 SAMPLE REPORT

Figure 2.2.2.a shows the report format for a run selecting two pollutants.

```
     SOURCE TEST DATA SYSTEM (SOTDAT) RETRIEVAL PROGRAM

 SELECT POLLUTANT = A2126A
 SELECT POLLUTANT = B2401T

                                                  POLLUTANT  :  A2126A

                                                     SCC :  30300602

                                                              SAMPLE
                                           RUN  REASON   TEST          TIME     SAMP        TEST       POLL    EMISSION FACTOR     EMISSIONS / HC
STA  CNTY  AQCR  PLANT  PT   FORM     DATE    NO  TESTED  METHOD  UNITS   (MIN)     POS       RESULT      TEMP     (KGMS / SEC)        (KGMS / HOUR)
 36  3160   181  0005       A00013  05118171  01     1      10      5    00120.00     0   450423.48570   051.0  00000113.1903270   05297330.70660
 36  3160   181  0005       A00014  05118171  02     1      10      5    00114.00     0      894.90000   036.0  00038469.2183104   00399440.33110

                                                  POLLUTANT  :  A2126A

                                                     SCC  :  30300699

                                                              SAMPLE
                                           RUN  REASON   TEST          TIME     SAMP        TEST       POLL    EMISSION FACTOR     EMISSIONS / HC
STA  CNTY  AQCR  PLANT  PT   FORM     DATE    NO  TESTED  METHOD  UNITS   (MIN)     POS       RESULT      TEMP     (KGMS / SEC)        (KGMS / HOUR)
 36  3160   181  0005       A00017  05120171  01     1      10      5    00108.00     0   450423.49735   052.0  00000455.9488908   21338305.13020
 36  3160   181  0005       A00018  05120171  02     1      10      5    00108.00     0   450423.49836   056.0  00000114.6643198   05366293.18000

                                                  POLLUTANT  :  B2401T

                                                     SCC  :  30300602

                                                              SAMPLE
                                           RUN  REASON   TEST          TIME     SAMP        TEST       POLL    EMISSION FACTOR     EMISSIONS / HC
STA  CNTY  AQCR  PLANT  PT   FORM     DATE    NO  TESTED  METHOD  UNITS   (MIN)     POS       RESULT      TEMP     (KGMS / SEC)        (KGMS / HOUR)
 36  3160   181  0005       A00013  05118171  01     1      77      5    00060.00     0   172559.82581   039.0  00001137.8661086   55583783.33440
 36  3160   181  0005       A00014  05118171  02     1      77      5    00140.00     0   140540.48770   039.0  00001358.3857385   91567277.49940

UNITS NOT SPECIFIED.  SOURCE ID 032200020
```

Figure 2.2.2.a. Emissions Factor for Specified Pollutant Codes

The Storage and Retrieval of Aerometric Data (SAROAD) System was one of the two original components of AEROS. The SAROAD system provides for the storage and retrieval of air quality and meteorological data and generates air quality data reports in three categories:

1. Raw Data Reports
2. Summary Reports
3. Management Reports

The raw data reports list the actual stored data on pollutant concentrations in the ambient atmosphere. They give the geographic location of the observations, as specified by the Site Code; the times and averaging periods of the data; and the method of data collection and analysis. The seven raw data reports described below are:

1. Raw data for less than 24 hour averaging periods
2. Raw data for sampling periods equal to or greater than 24 hours
3. Raw data for composite (variable samples)
4. Standards Listing
5. Site Description Inventory
6. Raw data in SAROAD format
7. Meteorological Raw Data Report and Plot

The summary reports give annual and quarterly summaries and frequency distributions of the air quality data. The five summary reports described below are:

1. Yearly Frequency Distribution
2. Quarterly Frequency Distribution
3. Yearly Report by Quarters
4. Meteorological and Pollutant Summary Statistics Plot
5. Meteorological and Pollutant Frequency, Percent Frequency, and Plot Reports

The management reports are designed to provide information on the status of the data contained in the SAROAD files, as well as on the activities of the data collection sites. These reports also are to provide inventories of the data available from the SAROAD system. The six management reports described herein are:

1. Inventory by Site
2. Inventory by Pollutant
3. Inventory by Pollutant within State
4. Summary Report of Valid Data
5. Summary Report of Monitoring Activity
6. Active Site Report

From the overall system point of view, SAROAD may be thought of as being divided into two major subsystems: the SAROAD site file with its associated information, and the SAROAD Data File consisting mainly of air quality data of several varieties.

The SAROAD site file contains descriptive information on the sampling site and its environment. This information includes the address of the site; the type of surveillance carried on at the site, whether population-oriented, background, compliance investigation, etc; the station location category, whether center city, industrial or rural, etc.; and the latitude, longitude, and elevation of the sampling device. The UTM coordinates may be given in place of or in addition to the geographic coordinates. Data for approximately 9,000 sites are stored in the SAROAD Site File, of which roughly one-half are currently operational sites. The reasons for storing data from some 5,000 discontinued sites in the SAROAD files have to do with the need for establishing trends in the ambient air quality around the nation and the importance of maintaining as large a population of data as possible for that purpose. In some cases the new site is very close to the old site and the record may be considered to be essentially uninterrupted if other factors, such as type of instrumentation, etc., remain unchanged. In addition, the several states have indicated plans for the installation of some 3,000 new sites, each one of which will collect data from a number of instruments sampling several pollutants. This growth is expected over the next few years, so that the size of the SAROAD Site File may reasonably be expected to increase by that amount, at least.

The principal uses of the SAROAD Site File at the present time is to correlate the site location and other identifying characteristics with all of the air quality (AQ) data associated with that site and to edit incoming data. All information on individual sites can be retrieved separately, if desired, on a geographical basis (i.e., by state, AQCR, etc.).

Site numbers for new or previously unreported sites are assigned by the appropriate EPA Regional Office. Before this can be done, however, all of the identifying characters of the site must be completed on the

SAROAD site form. No data can be included in the SAROAD files for a site until a site number has been assigned to that site. A complete directory of all site data for SAROAD monitoring sites is published annually by NADB (see section 5.2.3, below).

The SAROAD Data Subsystem is made up of ambient air quality (AQ) information and meteorological data which is submitted by over 4000 active air quality monitoring sites around the country for inclusion in the SAROAD system. The AQ data are extensively analyzed by statistical means in order to reduce the large quantity of raw data to useful information. The parameter coding system is arranged so that approximately 72,000 different pollutant codes can be identified. In addition, codes are assigned for the methods of collection and analysis of each parameter (pollutant). The sampling intervals employed in the monitoring activities range from 1-hour averages of continuous monitoring instrument readings to composite data taken at weekly, monthly, or quarterly intervals or at irregular intervals. For all AQ data, the following information is submitted:

1. Site ID
2. Parameters (pollutants sampled), Method, Interval
3. Date of observation
4. Data Values

Some of the reports which are available under the SAROAD system include certain statistics derived from the AQ data in the file. These statistics are calculated for all AQ data in the file, but the statistics are considered valid only when the data meet the NADB criteria for completeness of data. The formula for the four most commonly used statistics are given below, together with the stated criteria for data quantity which must be satisfied before the statistics are considered valid by NADB.

1. Arithmetic Mean $\bar{x} = \frac{\Sigma x}{n}$

2. Arithmetic Standard Deviation $SD = \sqrt{\frac{\Sigma x^2 - \frac{(\Sigma x)^2}{n}}{n-1}}$

3. Geometric Mean $= \text{Antilog} \frac{(\Sigma \ln x)}{n}$

4. Geometric Standard Deviation

$$SD_{GEO} = \text{Antilog } (SD_{log}) = \text{antilog} \sqrt{\frac{\Sigma(\ln x)^2 - \frac{(\Sigma \ln x)^2}{n}}{n-1}}$$

The air quality data criteria are as follows:

1. Minimum summary criteria for continuous sampling (sampling interval less than 24 hours) are:

   a. Data representing quarterly periods must reflect a minimum of 75 percent of the total number of possible observations for the applicable quarter.

b. Data representing annual periods must reflect a minimum of 75 percent of the total number of possible observations for the applicable year.

2. Minimum summary criteria for noncontinuous sampling (sampling interval of 24 hours or more) are:

   a. Data representing quarterly periods must reflect a minimum of five observations made during the applicable quarter. If no measurements were made during 1 month of the quarter, each of the two remaining months must have no fewer than two observations reported.

   b. Data representing annual periods must reflect 4 quarters of observational data satisfying the individual quarterly criteria.

Table 2.3.0.a summarizes the retrieval options available for each of the SAROAD reports.

Table 2.3.0.a. SUMMARY OF SAROAD RETRIEVALS

Report	Nationwide	EPA Region	State	State/Area	State/Area/Site	AQCR	Year	Year/Quarter	Year/Month	Pollutant	Pollutant/Method	Agency/Project	Any Combination of These	Several Combinations of These	State/Area/Site/Agency/Project
Raw Data Reports															
Raw Data Less Than 24 Hours	X		X	X	X		X		X	X	X	X	X		
Raw Data Listing Greater Than or Equal to 24 Hours	X		X	X	X	X	X		X	X	X	X	X		
Raw Data Listing Composite	X		X	X	X		X		X	X	X	X	X		
Standards Reports	X	X	X			X	X								
Site Description Inventory	X		X			X									
Raw Data in SAROAD Format			X	X	X		X		X	X	X	X		X	
Meteorological Raw Data Report and Plot			X	X	X		X	X	X	X	X	X			
Summary Reports															
Yearly Frequency Distribution	X		X	X	X	X	X		X	X	X	X		X	
Quarterly Frequency Distribution	X		X	X	X	X	X		X	X	X	X		X	
Yearly Report by Quarters	X		X	X	X	X	X		X	X	X	X		X	
Meteorological and Pollutant Summary Statistics Plot							X	X		X					X
Meteorological and Pollutant Frequency, Percent Frequency, and Plot Reports							X	X	X	X					X
Management Reports															
Inventory by Site	X	X	X												
Inventory by Pollutant	X	X	X							X					
State Inventory by Pollutant	X	X	X							X					
Summary Report of Valid Data	X		X	X								X	X		
Summary of Monitoring Activity	X						X	X							
Active Site Report			X	X	X	X	X			X	X	X		X	

RAW DATA LESS THAN 24 HOURS

General Description

This report lists the hourly observations of pollutant concentrations in 24 columns, 1 line per day, 1 month per page. The report may also be used, with suitable modifications in format, for data recorded for 2-, 3-, 4-, 6-, 8-, and 12-hour intervals. The heading of the report contains the name of the pollutant; the pollutant/method code; the units used; the method of collection and analysis; the name of the state; the area; the site name and address; the complete site, agency, and project code; the month and year; and an identifier giving the averaging period of the observational data (for example, "1-hour data listing"). To the left of the 24-column body of the report is a column giving the days of the month; to the right are columns for the daily mean values and the number of observations made each day. Below the row for the last day of the month are three other rows, one for the average values for each hour, one for the numbers of observations made at each hour throughout the month, and one for the maximum value occurring at each hour. In the lower righthand corner are the average value for the entire month, the total number of observations for the month, and the maximum value that occurred in the month. The report is also capable of creating 3-, 8-, 12-, and 24-hour running averages from 1-hour data.

Retrievals Available

The SAROAD System employs a standard selection format for all retrievals for reports using the "SAROAD Standard Format Selection" procedure. The 1-Hour Data Listing may be retrieved by the following selection keys:

a. Nationwide
b. State
c. State/Area
d. State/Area/Site
e. AQCR
f. Year
g. Year/Month
h. Pollutant
i. Pollutant/Method
j. Agency/Project
k. Any combination of these keys

The multiple items listed above indicate that the retrieval may not be effected for the "Area" key without also specifying the "State" key, and so on.

Sorts Available

There are no optional sorts available. Data are printed in ascending order by site ID and within site by pollutant.

Sample Report

Figure 2.3.1.a shows a sample of this report for ozone measurements at a site in Honolulu, Hawaii.

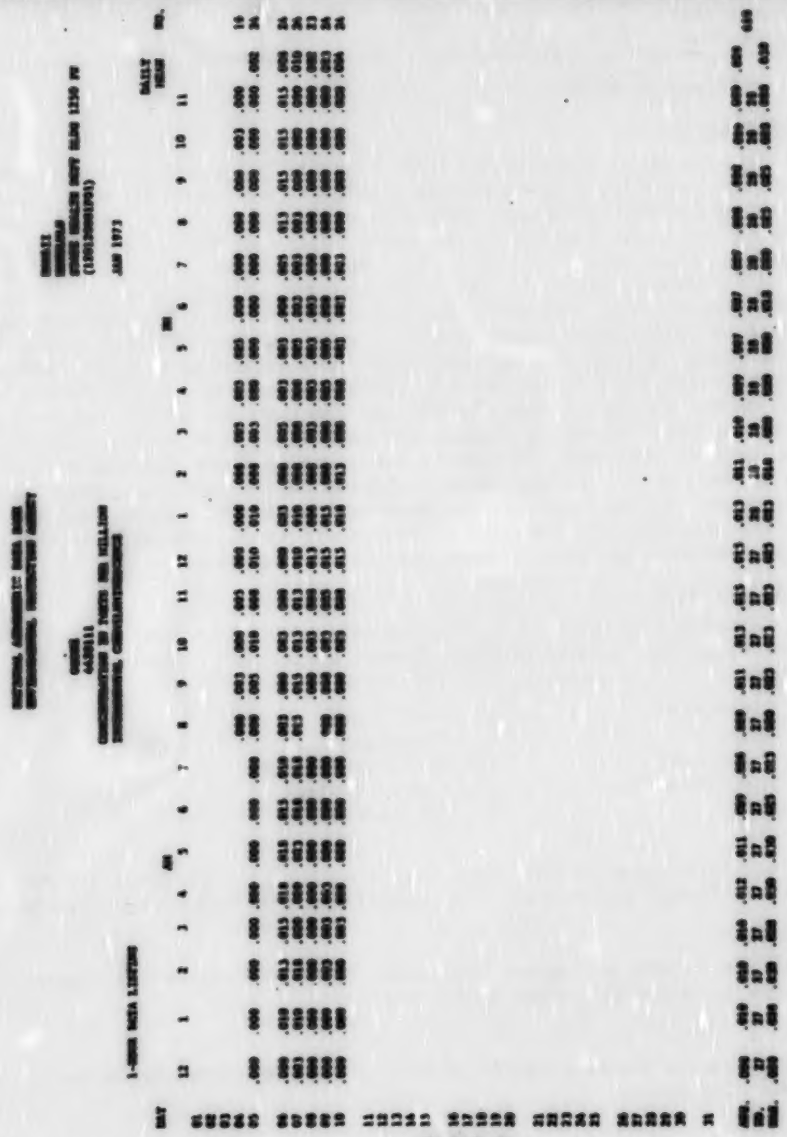


Figure 2.3.1.a. Raw Data Less Than 24 Hours Report

RAW DATA LISTING GREATER THAN OR EQUAL TO 24 HOURS

General Description

This report lists raw data observations for intervals of 24 hours, 1 week, 1 month, 3 months, 1 year, or composite data. The data report format varies with the sampling interval, but all intervals have the following items in common: (1) sampling interval in the heading, (2) a complete site description following the heading, and (3) the pollutant name, sample collection and analysis names, data reporting units, and the minimum detectable value for the sampling method. The report begins a new page with a change in interval, site, or pollutant.

For 24-hour data, 1 year of data appears per page in 13 columns, the first containing the days of the month and the next twelve one column for each month of the year. For each month and the year, the number of observations, the maximum value, and the mean are listed. A monthly mean is computed only if at least two observations are present, and the yearly mean is calculated only if the yearly summary criterion is met. The geometric mean is printed for particulates, and the arithmetic mean is printed for all other pollutants.

For the other reporting intervals, multiple years can be listed per page. For these intervals, the items listed include: the year; the month, week, or sampling period, which is dependent on the interval; the data value; and for composite data, the number of samples in the composite.

Retrievals Available

This report may be retrieved by the following selection criteria: nation, state, area, site, agency, project, pollutant, method, interval, begin date, end date, AQCR, and county.

Most combinations of the above selection criteria are valid, but the following combinations are invalid: (1) area or county without state, (2) site without state/area, (3) project without agency, and (4) method without pollutant.

The difference between a state/area and state/county retrieval is important--a state/area selection will give the sites which are in that area (city) while a state/county selection will give all state/area combinations located in that county.

Sorts Available

No optional sorts are available. The standard sort option for the selected data is by interval and by site ID.

Sample Reports

Figure 2.3.1.b shows a report retrieval for 24-hour data and Figure 2.3.1.c shows a report for quarterly composite.

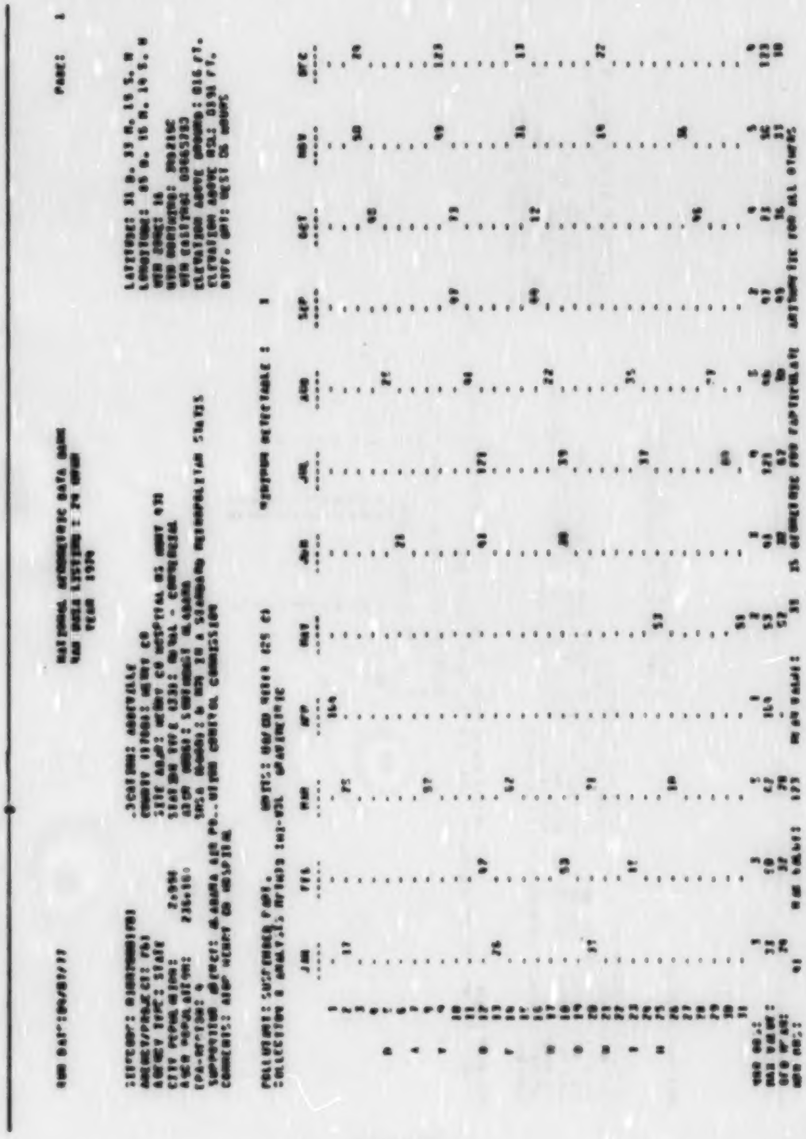


Figure 2.3.1.b. Raw data listing, 24-hour report.

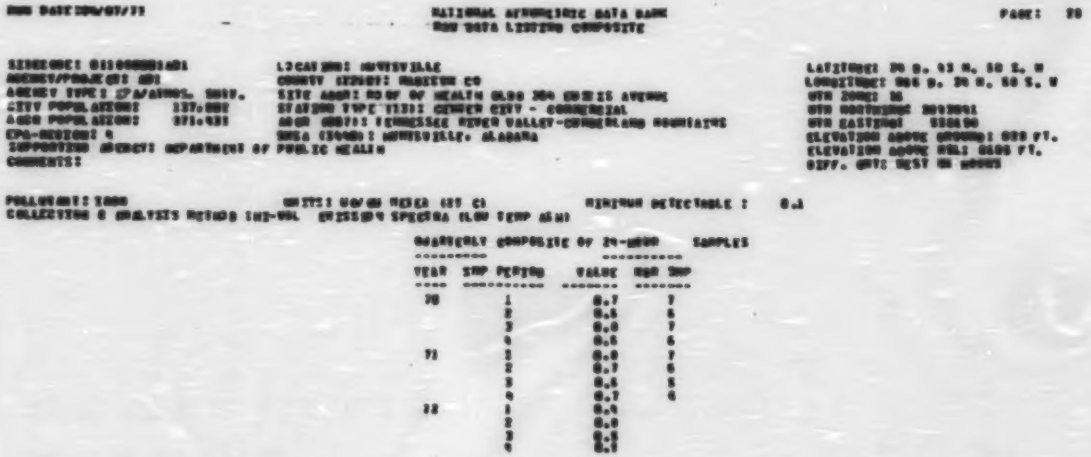


Figure 2.3.1.c. Raw data listing, composite report.

STANDARD REPORTS

General Description

This series of 12 reports shows, for each pollutant-site combination within the geographical region specified, the number of occasions within the period of time specified when the National Ambient Air Quality Standards (NAAQS) were violated. For those pollutants having both primary and secondary standards, the numbers of violations are shown separately for each type of standard. The standard format site description information appears at the top of the sheet with the designation of pollutant-interval combination above it, along with the State Code and name and the valid date of the data. Below the site description data, the main body of the report consists of 28 columns of data (for the monthly reports) or 13 columns of data (for the yearly reports) containing the individual hourly or daily observations for the pollutant in question. Every time that the appropriate standard was exceeded, a symbol (* or +) is placed beside the observation so as to identify the time and date of the violation. For the monthly reports, the number of observations and the mean value are tabulated for each day at the right-hand side of the paper; and the number of observations, maximum value, and arithmetic mean are listed for each hour of the day at the bottom of each column. For yearly reports the same data are provided, but on a monthly basis. Below these figures are given the total number of observations for the month (or year), the percentage of possible observations, the numbers of times that the respective standards were exceeded, the arithmetic or geometric mean and standard deviation, as appropriate, with accompanying statements as to whether the primary and secondary standards were met or exceeded (for those pollutants having standards based on those parameters), and, along the bottom of the page, the identifications by name of the methods of collection and analysis, together with a statement defining the time used (whether standard or daylight saving).

The following reports are available:

a. Particulate (total suspended particulates)
b. Sulfur dioxide, daily values
c. Sulfur dioxide, daily averages of hourly values
d. Sulfur dioxide, 3-hour averages
e. Carbon monoxide, hourly averages
f. Carbon monoxide, 8-hour averages
g. Total oxidants
h. Ozone
i. Nitrogen dioxide, daily values
j. Nitrogen dioxide, hourly values
k. Total hydrocarbons
l. Nonmethane hydrocarbons

Retrievals Available

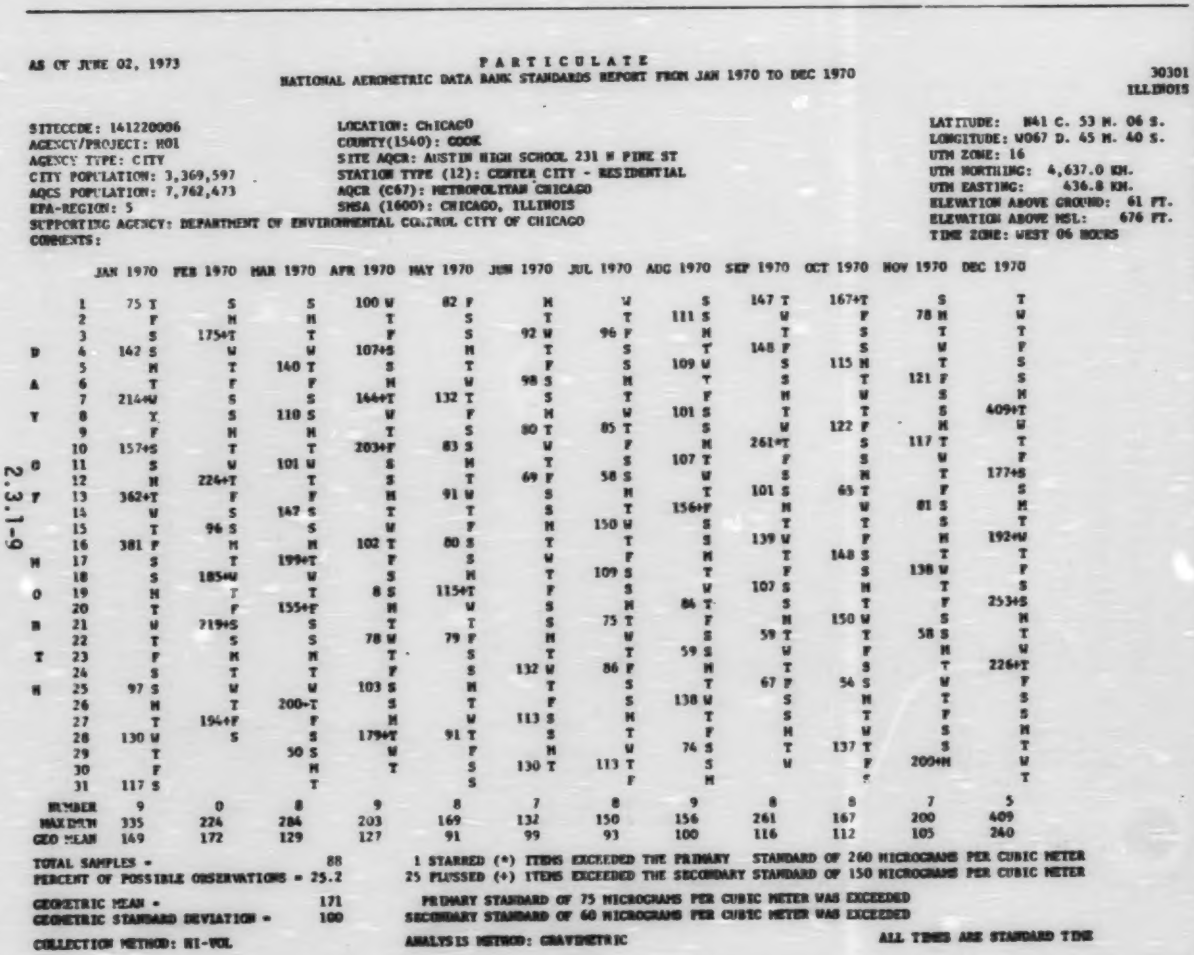
Once the basic selections of pollutant type and averaging interval have been made, the standards reports may be retrieved on a nationwide, EPA region, state, or AQCR basis for specified periods of time.

Sorts Available

There are no optional sorts available.

Sample Report

Figure 2.3.1.d shows a sample yearly report for particulate sampling followed by a sample monthly report for 3-hour running averages for sulfur dioxide.



```
AS OF JUNE 02, 1973                         P A R T I C U L A T E                                                     30301
                          NATIONAL AEROMETRIC DATA BANK STANDARDS REPORT FROM JAN 1970 TO DEC 1970                 ILLINOIS

SITECODE: 141220006                 LOCATION: CHICAGO                                   LATITUDE:   N41 C. 53 M. 06 S.
AGENCY/PROJECT: H01                 COUNTY(1540): COOK                                  LONGITUDE: W067 D. 45 M. 40 S.
AGENCY TYPE: CITY                   SITE AQCR: AUSTIN HIGH SCHOOL 231 N PINE ST         UTM ZONE: 16
CITY POPULATION: 3,369,597          STATION TYPE (12): CENTER CITY - RESIDENTIAL        UTM NORTHING:  4,637.0 KM.
AQCS POPULATION: 7,762,473          AQCR (C67): METROPOLITAN CHICAGO                    UTM EASTING:       436.8 KM.
EPA-REGION: 5                       SMSA (1600): CHICAGO, ILLINOIS                      ELEVATION ABOVE GROUND:  61 FT.
SUPPORTING AGENCY: DEPARTMENT OF ENVIRONMENTAL CONTROL CITY OF CHICAGO                  ELEVATION ABOVE MSL:    676 FT.
COMMENTS:                                                                               TIME ZONE: WEST 06 HOURS

        JAN 1970  FEB 1970  MAR 1970  APR 1970  MAY 1970  JUN 1970  JUL 1970  AUG 1970  SEP 1970  OCT 1970  NOV 1970  DEC 1970

     1      75 T         S         S     100 W      82 F         M         W         S     147 T     167+T         S         T
     2         F         M         M         T         S         T         T     111 S         W         F      78 M         W
     3         S     175+T         T         F         S      92 W      96 F         M         T         S         T         T
 D   4     142 S         W         W     107+S         M         T         S         T     148 F         S         W         F
     5         M         T     140 T         S         T         F         S     109 W         S     115 M         T         S
 A   6         T         F         F         M         W      98 S         M         T         S         T     121 F         S
     7     214+W         S         S     164+T     132 T         S         T         F         M         W         S         M
 Y   8         T         S     110 S         W         F         M         W     101 S         T         T         S     409+T
     9         F         M         M         T         S      80 T      85 T         S         W     122 F         M         W
    10     157+S         T         T     203+F      83 S         W         F         M     261*T         S     117 T         T
 O  11         S         W     101 W         S         M         T         S     107 T         F         S         W         F
    12         M     224+T         T         S         T      69 F      58 S         W         S         M         T     177+S
 F  13     362+T         F         F         M      91 W         S         M         T     101 S      65 T         F         S
    14         W         S     147 S         T         T         S         T     156+F         M         W      81 S         M
    15         T      96 S         S         W         F         M     150 W         S         T         T         S         T
    16     381 F         M         M     102 T      80 S         T         T         S     139 W         F         M     192+W
 M  17         S         T     199+T         F         S         W         F         M         T     148 S         T         T
    18         S     185+W         W         S         M         T     109 S         T         F         S     138 W         F
 O  19         M         T         T       8 S     115+T         F         S         W     107 S         M         T         S
    20         T         F     155+F         M         W         S         M      86 T         S         T         F     253+S
 N  21         W     219+S         S         T         T         S      75 T         F         M     150 W         S         M
    22         T         S         S      78 W      79 F         M         W         S      59 T         T      58 S         T
 T  23         F         M         M         T         S         T         T      59 S         W         F         M         W
    24         S         T         T         F         S     132 W      86 F         M         T         S         T     226+T
 H  25      97 S         W         W     103 S         M         T         S         T      67 F      56 S         W         F
    26         M         T     200+T         S         T         F         S     138 W         S         M         T         S
    27         T     194+F         F         M         W     113 S         M         T         S         T         F         S
    28     130 W         S         S     179+T      91 T         S         T         F         M         W         S         M
    29         T                50 S         W         F         M         W      74 S         T     137 T         S         T
    30         F                   M         T         S     130 T     113 T         S         W         F     200+M         W
    31     117 S                   T                   S                   F         M                   S                   T

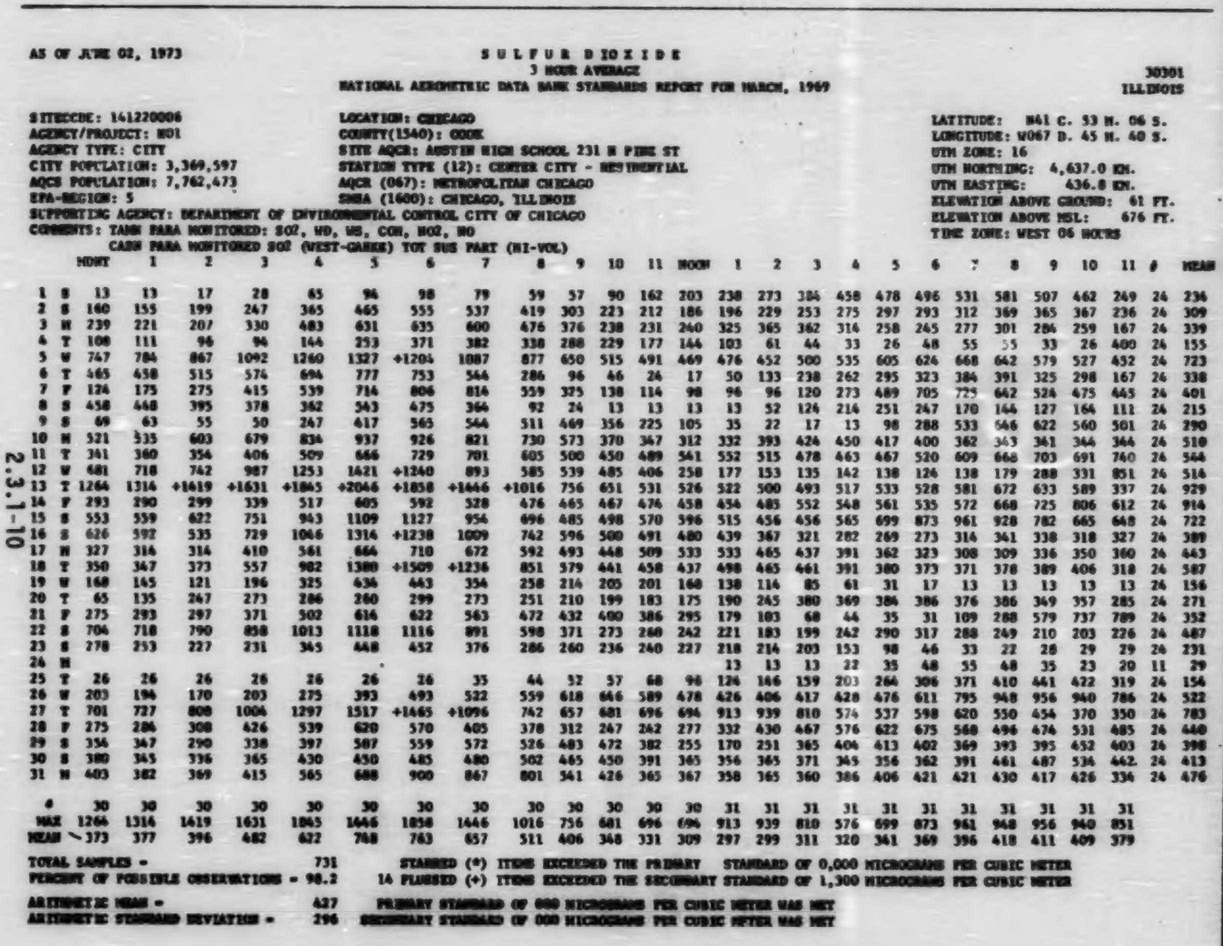
NUMBER         9         0         8         9         8         7         8         9         8         8         7         5
MAXIMUM      335       224       284       203       169       132       150       156       261       167       200       409
GEO MEAN     149       172       129       127        91        99        93       100       116       112       105       240

TOTAL SAMPLES =                           88       1 STARRED (*) ITEMS EXCEEDED THE PRIMARY   STANDARD OF 260 MICROGRAMS PER CUBIC METER
PERCENT OF POSSIBLE OBSERVATIONS = 25.2           25 PLUSSED (+) ITEMS EXCEEDED THE SECONDARY STANDARD OF 150 MICROGRAMS PER CUBIC METER

GEOMETRIC MEAN =                         171         PRIMARY STANDARD OF 75 MICROGRAMS PER CUBIC METER WAS EXCEEDED
GEOMETRIC STANDARD DEVIATION =           100       SECONDARY STANDARD OF 60 MICROGRAMS PER CUBIC METER WAS EXCEEDED

COLLECTION METHOD: HI-VOL                          ANALYSIS METHOD: GRAVIMETRIC                          ALL TIMES ARE STANDARD TIME
```

Figure 2.3.1.d. Standards Report



```
AS OF JUNE 02, 1973                                         S U L F U R  D I O X I D E
                                                                 3 HOUR AVERAGE                                                      30301
                                            NATIONAL AEROMETRIC DATA BANK STANDARDS REPORT FOR MARCH, 1969                          ILLINOIS

SITECODE: 141220006                         LOCATION: CHICAGO                                                   LATITUDE:   N41 C. 53 M. 06 S.
AGENCY/PROJECT: N01                         COUNTY(1540): COOK                                                  LONGITUDE: W067 D. 45 M. 40 S.
AGENCY TYPE: CITY                           SITE AQCR: AUSTIN HIGH SCHOOL 231 N PINE ST                         UTM ZONE: 16
CITY POPULATION: 3,369,597                  STATION TYPE (12): CENTER CITY - RESIDENTIAL                        UTM NORTHING:  4,637.0 KM.
AQCR POPULATION: 7,762,473                  AQCR (067): METROPOLITAN CHICAGO                                    UTM EASTING:      436.8 KM.
EPA-REGION: 5                               SMSA (1600): CHICAGO, ILLINOIS                                      ELEVATION ABOVE GROUND:  61 FT.
SUPPORTING AGENCY: DEPARTMENT OF ENVIRONMENTAL CONTROL CITY OF CHICAGO                                          ELEVATION ABOVE MSL:    676 FT.
COMMENTS: TAMS PARA MONITORED: SO2, WD, WS, COH, NO2, NO                                                        TIME ZONE: WEST 06 HOURS
          CAMN PARA MONITORED SO2 (WEST-GAEKE) TOT SUS PART (HI-VOL)
       MDNT     1     2     3     4     5     6     7     8     9    10    11  NOON     1     2     3     4     5     6     7     8     9    10    11   #  MEAN

 1 S     13    13    17    28    65    96    98    79    59    57    90   162   203   238   273   384   458   478   496   531   581   507   462   249  24   236
 2 S    160   155   199   247   365   465   555   537   419   303   223   212   186   196   229   253   275   297   293   312   369   365   367   236  24   309
 3 M    239   221   207   330   483   631   635   600   476   376   238   231   240   325   365   362   314   258   245   277   301   286   259   167  24   339
 4 T    108   111    96    96   144   253   371   382   338   288   229   177   144   103    61    44    33    26    48    55    55    33    26   400  24   155
 5 W    747   784   867  1092  1260  1327 +1204  1087   877   650   515   491   469   476   452   500   535   605   624   668   642   579   527   452  24   723
 6 T    465   458   515   574   694   777   753   544   286    96    46    24    17    50   133   238   262   295   323   384   391   325   298   167  24   338
 7 F    124   175   275   415   539   714   806   814   559   325   138   114    98    96    96   120   273   489   705   725   642   524   475   445  24   401
 8 S    458   448   395   378   342   543   475   344    92    24    13    13    13    13    52   124   214   251   247   170   144   127   164   111  24   215
 9 S     69    63    55    50   247   417   565   544   511   469   356   225   105    35    22    17    13    98   288   533   646   622   560   501  24   290
10 M    521   535   603   679   834   937   926   821   730   573   370   347   312   332   393   424   450   417   400   362   343   361   344   364  24   510
11 T    341   380   354   406   509   666   729   701   605   500   450   489   541   552   515   478   463   467   520   609   668   703   691   760  24   544
12 W    681   718   742   987  1253  1421 +1240   893   585   539   485   406   258   177   153   135   142   138   126   138   179   288   331   851  24   516
13 T   1264  1314 +1619 +1631 +1845 +2046 +1858 +1446 +1016   756   651   531   526   522   500   493   517   533   528   581   672   633   589   337  24   929
14 F    293   290   299   339   517   605   592   528   476   465   467   474   458   454   485   552   548   561   535   572   668   725   806   612  24   914
15 S    553   559   622   751   943  1109  1127   954   696   485   498   570   396   515   456   456   565   699   873   961   928   782   665   648  24   722
16 S    626   592   535   729  1046  1314 +1238  1009   742   596   500   491   480   439   367   321   282   269   273   314   341   338   318   327  24   389
17 M    327   316   314   410   561   664   710   672   592   493   448   509   533   533   465   437   391   362   323   308   309   336   350   360  24   443
18 T    350   347   373   557   982  1380 +1509 +1236   851   579   461   458   437   498   465   461   391   380   373   371   378   389   406   318  24   587
19 W    168   145   121   196   325   434   443   354   258   214   205   201   168   138   114    85    61    31    17    13    13    13    13    13  24   156
20 T     65   135   247   273   286   260   299   273   251   210   199   183   175   190   245   380   369   384   386   376   386   349   357   285  24   271
21 F    275   293   297   371   502   614   622   563   472   432   400   386   295   179   103    68    44    35    31   109   288   579   737   789  24   352
22 S    704   718   790   858  1013  1118  1116   891   598   371   273   260   242   221   183   199   242   290   317   288   249   210   203   226  24   487
23 S    278   253   227   231   345   448   452   376   286   260   236   240   227   218   214   203   153    98    46    33    22    28    29    29  24   231
24 M                                                                                   13    13    13    22    35    48    55    48    35    23    20  11    29
25 T     26    26    26    26    26    26    26    35    44    52    57    68    98   126   166   159   203   264   306   371   410   441   422   319  24   156
26 W    203   194   170   203   275   393   493   522   559   618   646   589   478   426   406   417   428   476   611   795   948   956   940   786  24   522
27 T    701   727   808  1006  1297  1517 +1465 +1096   742   657   681   696   694   913   939   810   574   537   598   620   550   454   370   350  24   783
28 F    275   286   308   426   539   620   570   405   378   312   267   262   277   332   430   467   576   622   675   568   496   474   531   485  24   440
29 S    356   347   290   338   397   507   559   572   526   483   472   382   255   170   251   365   404   413   402   369   393   395   452   403  24   398
30 S    380   345   336   365   430   450   485   480   502   465   450   391   365   356   365   371   345   356   362   391   461   487   536   442.  24   413
31 M    403   382   369   415   565   688   900   867   801   341   426   365   367   358   365   360   386   406   421   421   430   417   426   334  24   476

     #     30    30    30    30    30    30    30    30    30    30    30    30    30    31    31    31    31    31    31    31    31    31    31    31
   MAX   1264  1316  1419  1631  1845  1446  1858  1446  1016   756   681   696   696   913   939   810   576   699   873   961   948   956   940   851
  MEAN \  373   377   396   482   622   768   763   657   511   406   348   331   309   297   299   311   320   341   369   396   418   411   409   379

TOTAL SAMPLES -                            731         STARRED (*) ITEMS EXCEEDED THE PRIMARY   STANDARD OF 0,000 MICROGRAMS PER CUBIC METER
PERCENT OF POSSIBLE OBSERVATIONS - 98.2            14 FLUSSED (+) ITEMS EXCEEDED THE SECONDARY STANDARD OF 1,300 MICROGRAMS PER CUBIC METER

ARITHMETIC MEAN -                          427         PRIMARY STANDARD OF 000 MICROGRAMS PER CUBIC METER WAS MET
ARITHMETIC STANDARD DEVIATION -            296     SECONDARY STANDARD OF 000 MICROGRAMS PER CUBIC METER WAS MET
```

Figure 2.3.1.d (continued). Standards Report

SITE DESCRIPTION INVENTORY

General Description

This report lists, in a standard site description format, information concerning the environment and operating characteristics of the given sampling site or sites. The site descriptive information is arranged in three blocks across the page, each block containing six to eight lines of information. The various codes as set forth in Volume V, AEROS Manual of Codes, are provided for the various station parameters and each is defined by name. These codes include those for the state, area, agency/project, EPA Region, county, station type, AQCR, SMSA, and UTM zone. The actual numerical values are also provided for the city and AQCR populations, as well as for various geographic parameters including the latitude and longitude of the sampling site, its UTM grid coordinates, the elevation of the sampling probe above the ground and above MSL, and the time differential between local standard time and GMT. In addition, the name of the location is given, along with the name of the supporting agency and any comments that may be appropriate.

Retrievals Available

The site description data can be retrieved on a state, AQCR, or nationwide basis.

Sorts Available

The report is sorted by Site Code number within states. No other sorts are available as options for the user.

Sample Report

Figure 2.3.1.e shows a "Site Description Inventory" for two sites in the State of Rhode Island.

```
                                 NATIONAL AEROMETRIC DATA BANK                                         PAGE 41-0001
                                   SITE DESCRIPTION INVENTORY
                                   STATE (41): RHODE ISLAND

SITECODE: 410040001F01           LOCATION: BRISTOL                                      LATITUDE: 41 D. 40 M. 26 S. N
AGENCY/PROJECT: F01              COUNTY (0060): BRISTOL CO                              LONGITUDE:  71 D. 16 M. 10. S. W
AGENCY TYPE: STATE               SITE ADDR:REYNOLDS ELEMENTARY SCHOOL                   UTM ZONE: 19
CITY POPULATION:     17,860      STATION TYPE (22): SUBURBAN - RESIDENTIAL              UTM NORTHING: 4613000
AQCR POPULATION:  1,645,300      AQCR (120): METROPOLITAN PROVIDENCE                    UTM EASTING: 00310900
EPA-REGION: 1                    SMSA (6480): PROVIDENCE-PAWTUCKET-WARWICK, R.I.-MASS   ELEVATION ABOVE GROUND: 040 FT.
SUPPORTING AGENCY: RHODE ISLAND DEPARTMENT OF HEALTH                                    ELEVATION ABOVE MSL: 0090 FT.
COMMENTS:                                                                               DIFF. GMT: WEST 05 HOURS

SITECODE: 410065001F01           LOCATION: BURRILLVILLE                                 LATITUDE: 41 D. 58 M. 9 S. N
AGENCY/PROJECT: F01              COUNTY (0320): PROVIDENCE CO                           LONGITUDE: 71 D. 39 M. 48 S. W
AGENCY TYPE: STATE               SITE ADDR: BURRILLVILLE HIGH SCHOOL                    UTM ZONE: 19
CITY POPULATION:     10,087      STATION TYPE (22): SUBURBAN - RESIDENTIAL              UTM NORTHING: 4649500
AQCR POPULATION:  1,645,300      AQCR (120): METROPOLITAN PROVIDENCE                    UTM EASTING: 00279300
EPA-REGION: 1                    SMSA (6480): PROVIDENCE-PAWTUCKET-WARWICK, R.I.-MASS   ELEVATION ABOVE GROUND: 020 FT.
SUPPORTING AGENCY: RHODE ISLAND DEPARTMENT OF HEALTH                                    ELEVATION ABOVE MSL" 0370 FT.
COMMENTS:                                                                               DIFF. GMT: WEST 05 HOURS
```

Figure 2.3.1.e. Site Description Inventory Report

RAW DATA IN SAROAD FORMAT

General Description

The report creates cards or magnetic tape of the raw data input to the computer in the same form as prepared for input. Figures 2.3.1.f, 2.3.1.g, and 2.3.1.h show the input data formats used for the SAROAD programs.

Retrievals Available

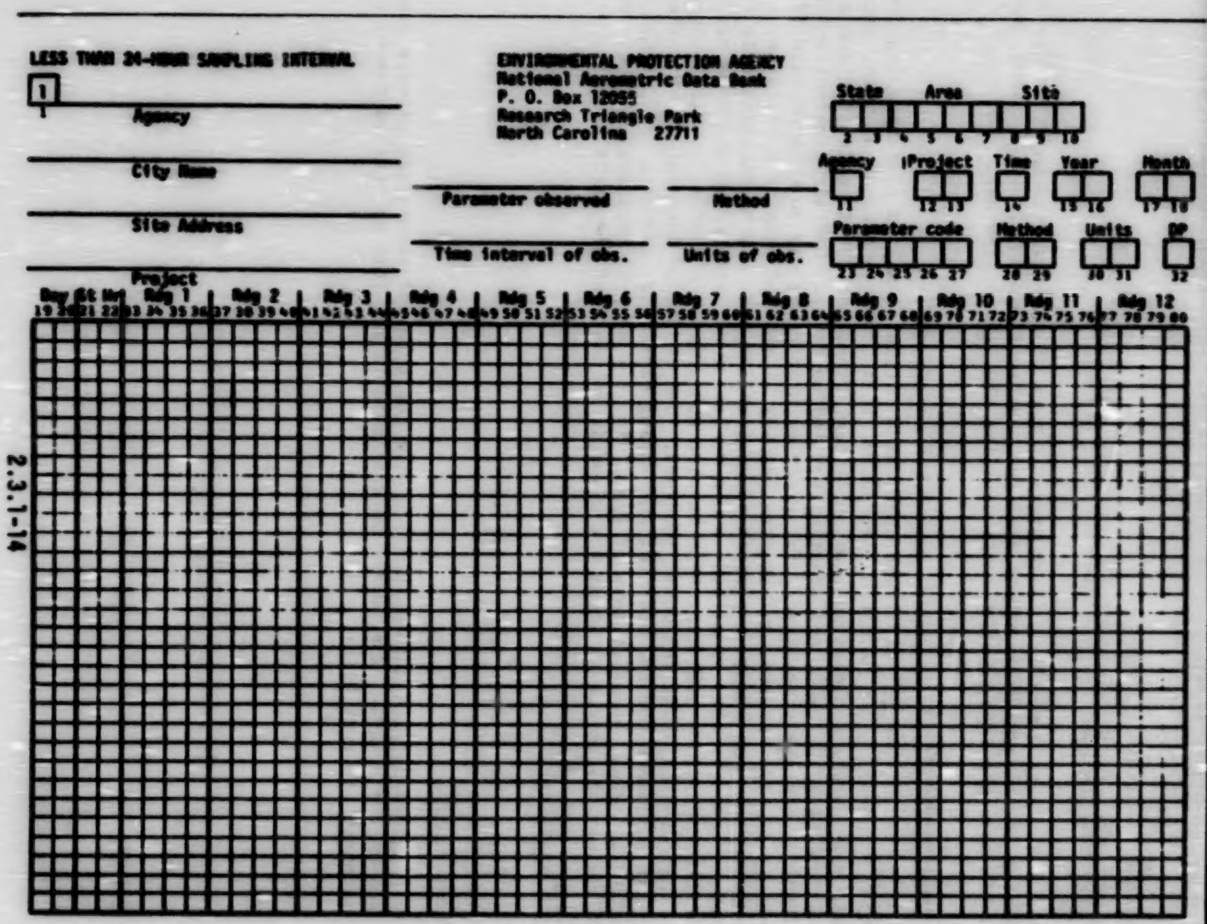
There are several key items upon which retrieval may be made by using the SAROAD Standard Format Selection procedure, including: state, area, site, agency type, AQCR, project classification, pollutant type, method of collection and analysis, sampling interval, and starting and ending dates. Certain combinations of selection keys are prohibited. For example, a site key may be entered only if an area key is also entered, and an area key may be entered only if a state key is also entered. Similarly, a project classification code may be included only if an agency type is also specified, and a method of collection and analysis may be specified only if a pollutant type is also specified. All other combinations may be considered as valid retrieval requests. The period of interest is specified by year and month for the starting and ending dates; for example, "7302 7304" or "6801 7212" would be valid ways of specifying the desired retrieval period. Codes for the various retrieval items are given in Volume V of the AEROS Manual.

Sorts Available

There are no sort options available.

Sample Report

Figures 2.3.1.f through 2.3.1.h give the type and sequencing of data contained in the report. The output is available in the form of punched cards, or on magentic tape, or both.



LESS THAN 24-HOUR SAMPLING INTERVAL

☐1
1

Agency

City Name

Site Address

Project

ENVIRONMENTAL PROTECTION AGENCY
National Aerometric Data Bank
P. O. Box 12055
Research Triangle Park
North Carolina 27711

Parameter observed

Method

Time interval of obs.

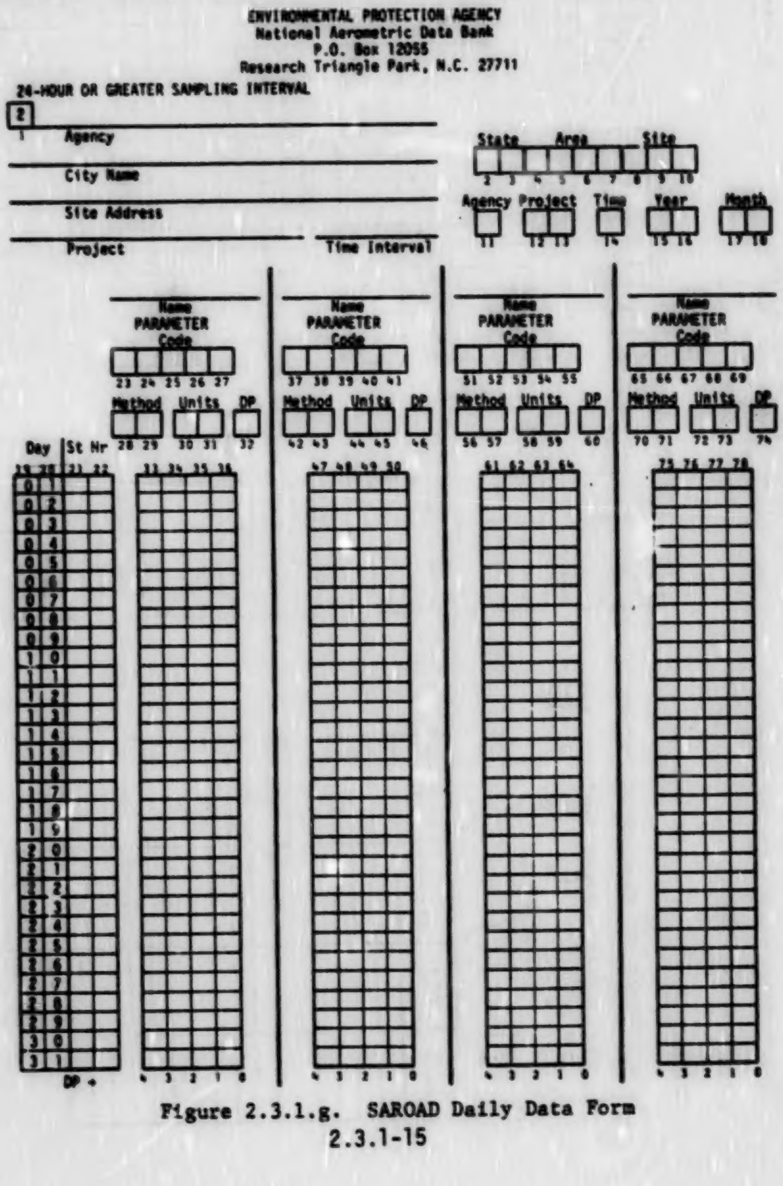
Units of obs.

State ☐☐ Area ☐☐☐☐ Site ☐☐☐ (2–10)
Agency ☐ (11) Project ☐☐ (12 13) Time ☐ (14) Year ☐☐ (15 16) Month ☐☐ (17 18)
Parameter code ☐☐☐☐☐ (23–27) Method ☐☐ (28 29) Units ☐☐ (30 31) DP ☐ (32)

Day 19 20 | St Hr 21 22 | Rdg 1 33 34 35 36 | Rdg 2 37 38 39 40 | Rdg 3 41 42 43 44 | Rdg 4 45 46 47 48 | Rdg 5 49 50 51 52 | Rdg 6 53 54 55 56 | Rdg 7 57 58 59 60 | Rdg 8 61 62 63 64 | Rdg 9 65 66 67 68 | Rdg 10 69 70 71 72 | Rdg 11 73 74 75 76 | Rdg 12 77 78 79 80

Figure 2.3.1.f. SAROAD Hourly Data Form

ENVIRONMENTAL PROTECTION AGENCY	**SECTION** Report Capabilities	**SECTION** 2	**CHAPTER** 3	**SUBJECT** 1
NATIONAL AIR DATA BRANCH	**CHAPTER** Air Quality Data	**DATE** 2/7/77 Update III-1		**PAGE** 15
VOLUME III. AEROS SUMMARY AND RETRIEVAL MANUAL	**SUBJECT** Raw Data Reports			



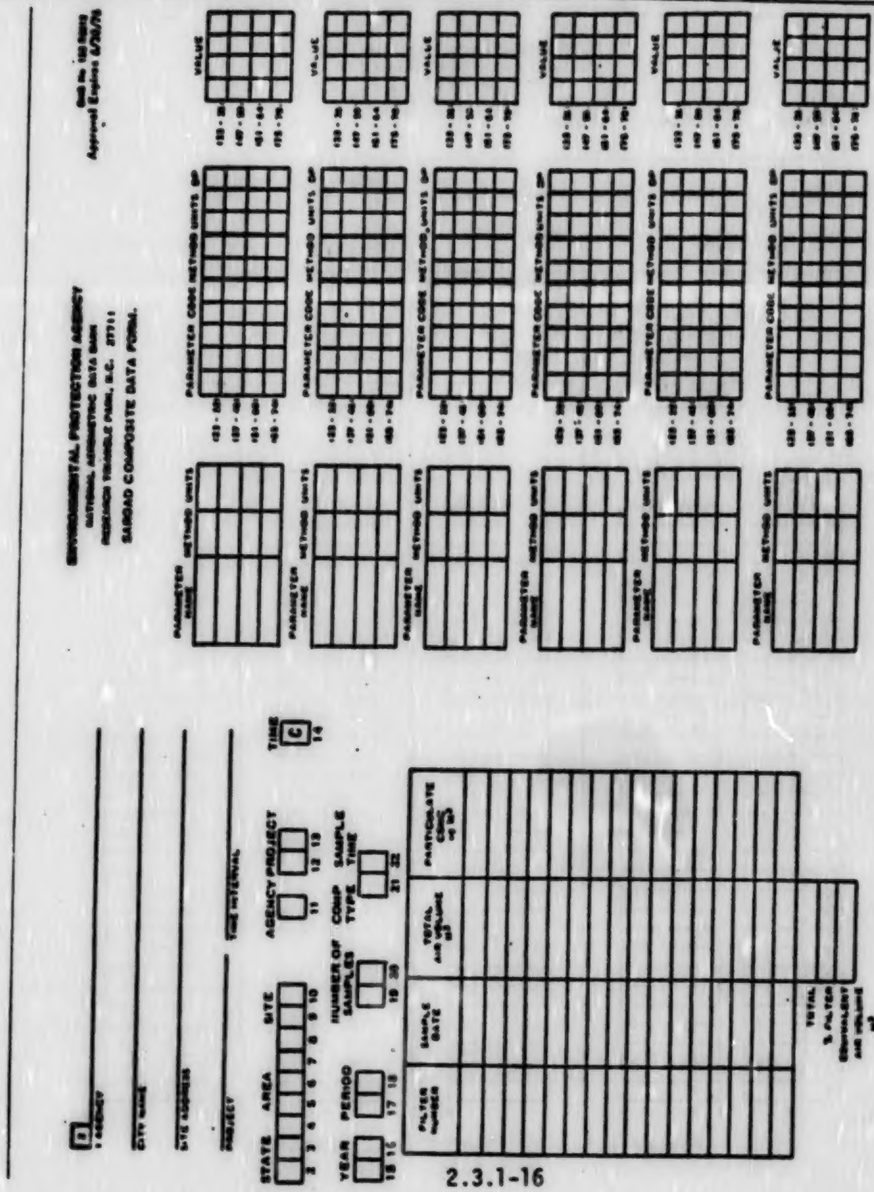
ENVIRONMENTAL PROTECTION AGENCY
National Aerometric Data Bank
P.O. Box 12055
Research Triangle Park, N.C. 27711

24-HOUR OR GREATER SAMPLING INTERVAL

2
1
Agency
City Name
Site Address
Project
Time Interval
State Area Site
2 3 4 5 6 7 8 9 10
Agency Project Time Year Month
11 12 13 14 15 16 17 18
Name
PARAMETER
Code
23 24 25 26 27
Method Units DP
28 29 30 31 32
33 34 35 36
37 38 39 40 41
42 43 44 45 46
47 48 49 50
51 52 53 54 55
56 57 58 59 60
61 62 63 64
65 66 67 68 69
70 71 72 73 74
75 76 77 78
Day
19 20
St Hr
21 22
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
DP →
4 3 2 1 0

Figure 2.3.1.g. SAROAD Daily Data Form

ENVIRONMENTAL PROTECTION AGENCY	**SECTION** Report Capabilities	**SECTION** 2	**CHAPTER** 3	**SUBJECT** 1
NATIONAL AIR DATA BRANCH	**CHAPTER** Air Quality Data	**DATE**		**PAGE**
VOLUME III. AEROS SUMMARY AND RETRIEVAL MANUAL	**SUBJECT** Raw Data Reports	2/7/77 Update III-1		16



ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AEROMETRIC DATA BANK
RESEARCH TRIANGLE PARK, N.C. 27711
SAROAD COMPOSITE DATA FORM

1 AGENCY
CITY NAME
SITE ADDRESS
PROJECT
TIME INTERVAL

STATE AREA SITE 2 3 4 5 6 7 8 9 10
AGENCY 11
PROJECT 12 13
TIME C 14
YEAR 15 16
PERIOD 17 18
NUMBER OF SAMPLES 19 20
COMP TYPE 21
SAMPLE TIME 22

FILTER NUMBER	SAMPLE DATE	TOTAL AIR VOLUME m^3	PARTICULATE CONC $\mu g/m^3$

TOTAL % FILTER EQUIVALENT AIR VOLUME m^3

PARAMETER NAME | METHOD | UNITS

PARAMETER CODE | METHOD | UNITS | DP

VALUE

2.3.1-16

Figure 2.3.1.h. SAROAD Composite Data Form

METEOROLOGICAL RAW DATA REPORT AND PLOT

General Description

This report creates two unique print formats and a plot of meteorological data. The first print format lists the site description at the top of the page, then the parameter-method-unit names, and the raw data values for one month. Each line contains up to 24 raw data values, the mean, and number of observations for each day. This line is repeated for each day in the month. At the bottom of the page, the minimum, maximum, average, and number of observations are given for each hour of the day for that month.

This second printout repeats the site description at the top and the parameter-method-unit names and lists the minimum, the hour of the minimum, the maximum, the hour of the maximum, the mean, and the number of observations for each day of the month.

The plot of the meteorological data is created on CALCOMP plotter or a TEXTRONIX terminal. A separate plot is created for each month of data. The daily minimums, maximums, and means for a specific parameter for each day of the month are plotted with descriptive information on the site and parameter. The plot is a separate report and may be omitted if only the raw data listing is required.

Retrievals Available

The meteorological raw data reports and plots may be retrieved by state, area, site, agency, project, pollutant (only 6XXXX) method units, start and end date, and any appropriate combination of the above.

For the plots, the minimum scale value and a delta value may be specified by the user, or, if omitted, they are calculated by the program. The user can also specify what values (daily minimum, maximum, and/or mean) are plotted.

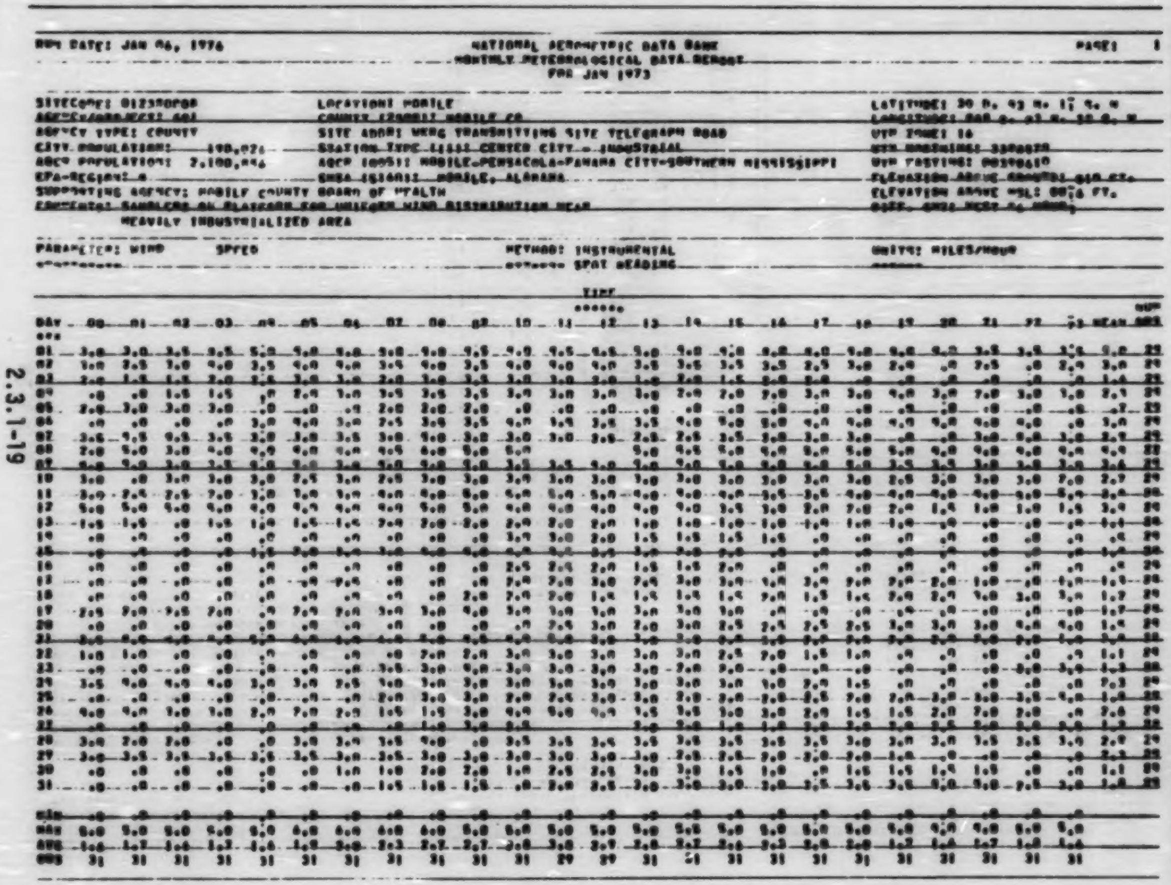
Sorts Available

No optional Sorts are available for this report. The report is printed according to the order on the file:

state/area/site/agency/project/pollutant/year/month

Sample Report

Figures 2.3.1-i,j,k, show examples for wind speed for a site in Mobile, Alabama, for January 1973.



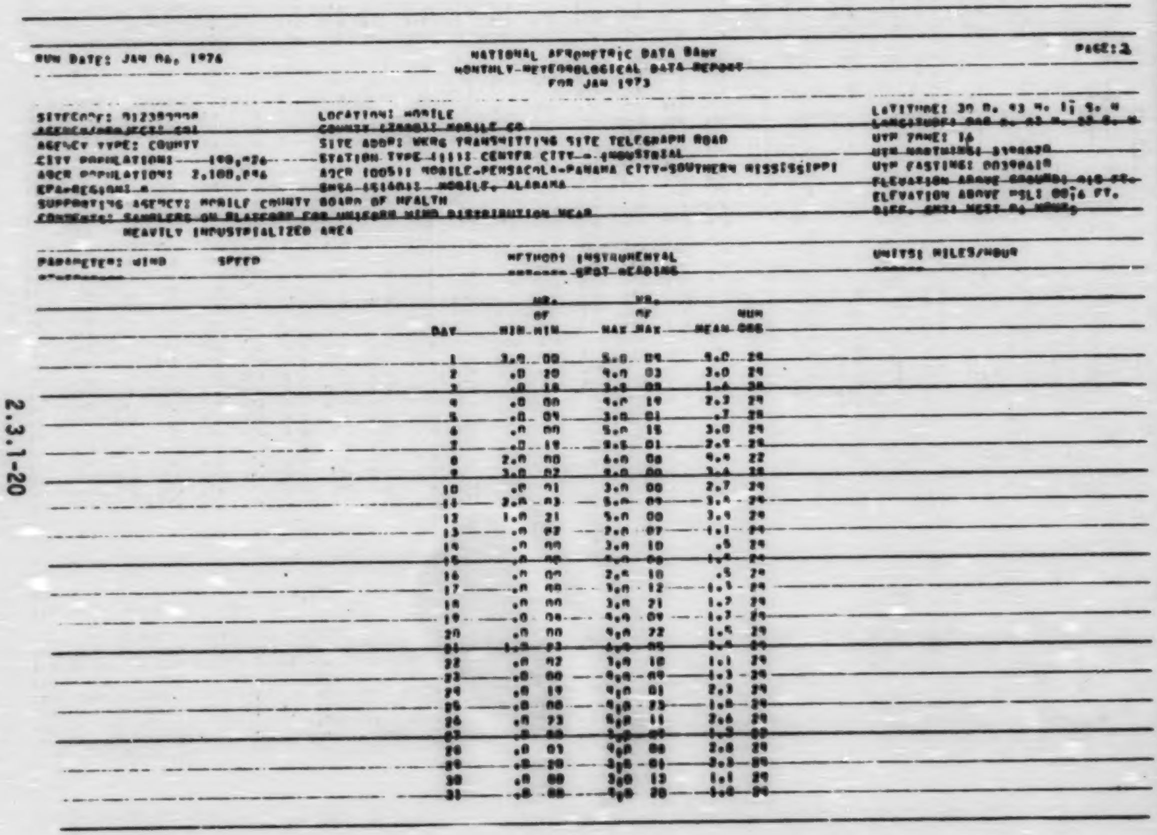
```
RUN DATE: JAN 06, 1976          NATIONAL AEROMETRIC DATA BANK                    PAGE:    1
                              MONTHLY METEOROLOGICAL DATA REPORT
                                        FOR JAN 1973

LOCATION: MOBILE
COUNTY [illegible] MOBILE CO
SITE ADDR: WKRG TRANSMITTING SITE TELEGRAPH ROAD
AGENCY TYPE: COUNTY
AQCR [illegible] MOBILE-PENSACOLA-PANAMA CITY-SOUTHERN MISSISSIPPI
SMSA [illegible] MOBILE, ALABAMA
SUPPORTING AGENCY: MOBILE COUNTY BOARD OF HEALTH
        HEAVILY INDUSTRIALIZED AREA

PARAMETER: WIND      SPEED            METHOD: INSTRUMENTAL          UNITS: MILES/HOUR
                                              SPOT READING

                                             TIME
DAY  00  01  02  03  04  05  06  07  08  09  10  11  12  13  14  15  16  17  18  19  20  21  22  23 MEAN
```

Figure 2.3.1-1. Meteorological Raw Data Report.



```
RUN DATE: JAN 06, 1976            NATIONAL AEROMETRIC DATA BANK                                   PAGE: 2
                                  MONTHLY-METEOROLOGICAL DATA REPORT
                                           FOR JAN 1973

SITECODE: 012380008           LOCATION: MOBILE                                           LATITUDE: 30 D. 43 M. 1[illegible] S. N
AGENCY/PROJECT: C01           COUNTY (0080): MOBILE CO                                   LONGITUDE: 088 D. 03 M. 33 S. W
AGENCY TYPE: COUNTY           SITE ADDR: WKRG TRANSMITTING SITE TELEGRAPH ROAD           UTM ZONE: 16
CITY POPULATION:    190,026   STATION TYPE (111): CENTER CITY - INDUSTRIAL               UTM NORTHING: 3[illegible]
AQCR POPULATION:  2,100,096   AQCR (005): MOBILE-PENSACOLA-PANAMA CITY-SOUTHERN MISSISSIPPI   UTM EASTING: 00[illegible]
EPA-REGION: 4                 SMSA (5160): MOBILE, ALABAMA                               ELEVATION ABOVE GROUND: 010 FT.
SUPPORTING AGENCY: MOBILE COUNTY BOARD OF HEALTH                                         ELEVATION ABOVE MSL: 0016 FT.
COMMENTS: SAMPLERS ON PLATFORM FOR UNIFORM WIND DISTRIBUTION NEAR                        DIFF. GMT: WEST 06 HOURS
          HEAVILY INDUSTRIALIZED AREA

PARAMETER: WIND      SPEED                    METHOD: INSTRUMENTAL                       UNITS: MILES/HOUR
[illegible]                                   [illegible] SPOT READING

                                   HR.          HR.
                                   OF           OF           NUM
                        DAY   MIN  MIN    MAX  MAX    MEAN  OBS

                          1   3.0  00     5.0  09     4.0   29
                          2    .0  20     4.0  03     3.0   29
                          3    .0  18     3.0  09     1.6   28
                          4    .0  00     4.0  19     2.3   29
                          5    .0  09     3.0  01      .7   29
                          6    .0  00     5.0  15     3.0   29
                          7    .0  19     5.0  01     2.9   29
                          8   2.0  00     6.0  08     4.4   22
                          9   3.0  02     4.0  00     3.4   28
                         10    .0  01     3.0  00     2.7   29
                         11   2.0  03     5.0  09     3.4   29
                         12   1.0  21     5.0  00     3.4   29
                         13    .0  02     2.0  07     1.1   29
                         14    .0  00     3.0  10      .5   29
                         15    .0  00     4.0  00     1.4   29
                         16    .0  00     2.0  10      .5   29
                         17    .0  00     3.0  12     1.3   29
                         18    .0  00     3.0  21     1.7   29
                         19    .0  08     4.0  09     1.7   29
                         20    .0  00     4.0  22     1.5   29
                         21   1.0  23     4.0  05     3.4   29
                         22    .0  02     3.0  10     1.1   29
                         23    .0  00     4.0  09     1.3   29
                         24    .0  19     4.0  01     2.3   29
                         25    .0  00     4.0  23     1.8   29
                         26    .0  23     5.0  11     2.6   29
                         27    .0  00     3.0  [illegible]  1.3   [illegible]
                         28    .0  01     4.0  08     2.8   29
                         29    .0  20     3.0  01     2.3   29
                         30    .0  00     3.0  13     1.1   29
                         31    .0  00     4.0  20     1.4   29
```

Figure 2.3.1-j. Meteorological Raw Data Report.

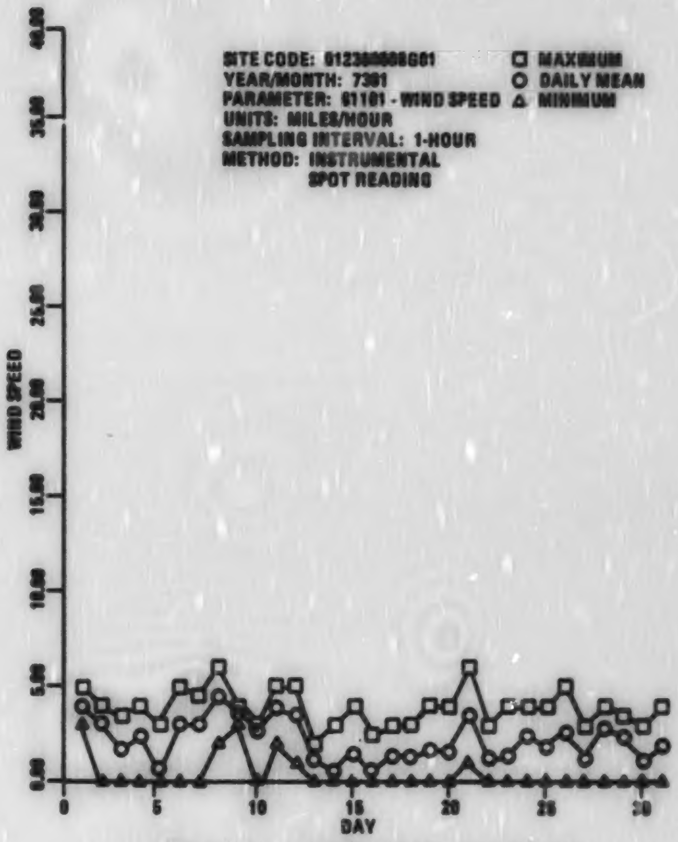


Figure 2.3.1-k. Meteorological raw data plot.

YEARLY FREQUENCY DISTRIBUTION

General Description

This report lists the site description and annual summary information for all data that satisfy the retrieval criteria. The site description is repeated at the top of each page, followed by the data. The site description gives the geographical information necessary to locate the site and is separated from the data by a data heading. Below the data heading, the codes and names are given for the pollutant, the sampling and analysis methods, the sampling interval, and the standard units in which the data are printed. The data items include: the year of the data; the percent of observations for continuous data; the number of observations; the number of primary and secondary violations of the NAAQS's; the minimum detectable for the sampling method; the minimum, maximum and second maximum observations; the 10, 30, 50, 70, 90, 95, and 99 percentiles; the arithmetic mean; the geometric mean; and the geometric standard deviation. The number of violations of the NAAQS's represents the number of violations of the short term standards. For the running averages, the number of violations are for non-overlapping running averages.

The retrieval and print options which are based on summary criteria are: (1) print all data which meet other selection criteria but do not print the means and standard deviation when summary criteria are not met (default), (2) print all data which meet other selection criteria and flag the statistics when summary criteria are not met, (3) print only data which meet summary criteria, or (4) print only data which fail the summary criteria.

Retrievals Available

The report is generated from data which satisfy the following selection criteria: nation, state, area, site, agency, project, pollutant, method, interval, begin year, end year, AQCR, and county.

Most combinations of the above selection criteria are valid but the following combinations are invalid: (1) area or county without state, (2) site without state/area, (3) project without agency, and (4) method without pollutant.

The difference between a state/area and a state/county retrieval is important--a state/area selection will only give the sites which are in that area (city) while a state/county selection will give all state/area combinations located in that county.

Sorts Available

This report may be sorted in ascending (default) or descending order by the following options: state, area, site, agency, project, AQCR, pollutant, method, units, interval, year, pollutant value, and county code. For this report, the pollutant value sort is on the yearly maximum observed value. Any number of sorts can be specified in any desired order, but certain sort combinations may produce a confusing report.

Sample Report

Figure 2.3.2.a shows a Yearly Frequency Distribution Report for particulate, carbon monoxide, sulfur dioxide and ozone for a site in Providence, Rhode Island.

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06-21-76                               NATIONAL AEROMETRIC DATA BANK                                   PAGE 41-0001
                                       YEARLY FREQUENCY DISTRIBUTION
                                         STATE (41): RHODE ISLAND

SITECODE: 410300003F01            LOCATION: PROVIDENCE                                     LATITUDE: 41 D. 49 M. 54 S. N
AGENCY/PROJECT: F01               COUNTY (2220): PROVIDENCE CO                             LONGITUDE:  71 D. 24 M. 56 S. W
AGENCY TYPE: STATE                SITE ADDR: STATE OFFICE BUILDING                         UTM ZONE: 19
CITY POPULATION:     179,213      STATION TYPE (11): CENTER CITY - INDUSTRIAL              UTM NORTHING: 4633700
AQCR POPULATION:  1,646,330       AQCR (120): METROPOLITAN PROVIDENCE                      UTM EASTING: 0029960
EPA-REGION: 1                     SMSA (6480): PROVIDENCE-PAWTUCKET-WARWICK, R.I.-MASS     ELEVATION ABOVE GROUND: 056 FT.
SUPPORTING AGENCY: RHODE ISLAND DEPARTMENT OF HEALTH                                       ELEVATION ABOVE MSL: 0100 FT.
COMMENTS: PROVIDENCE STATION 2                                                             DIFF. GMT: WEST 05 HOURS

------------------------------------------------------------------------------------------------------------------------
POLLUTANT NAME                               METHOD OF COLLECTION AND ANALYSIS.            INTERVAL    STANDARD UNITS
POLLUTANT-METHOD-INTERVAL-UNITS CODE
       PCT   NBR   AVTGL     MIN      MIN                   PERCENTILES                    MAX      2ND     ARIT     GEOM     GEOM
 YEAR  OBS   OBS  PRT SEC   DETEC     OBS       10    30    50    70    90    95    99     OBS      MAX     MEAN     MEAN   STD DEV
------------------------------------------------------------------------------------------------------------------------

PARTICULATE                                  HI-VOL  GRAVIMETRIC                           24-HOUR    UG/CU METER (25 C)
11101-91-7-01
  73          51   F  L       1.      21.       32.   40.   46.   58.  107.  130.  138.    138.     137.      58.      52.     1.6
  74          61   F  2       1.      22.       37.   51.   61.   82.  103.  141.  157.    157.     155.      70.      63.     1.6
  75          50   F  6       1.      32.       35.   53.   57.   73.  101.  119.  121.    121.     114.      65.*     60.*    1.5*

CARBON MONOXIDE                              INSTRUMENTAL  NONDISPERSIVE INFRA-RED         1-HOUR     MG/CU METER (25 C)
42101-11-1-05
  72     33 3167   F  L     0.6     0.2       0.6   1.1   2.3   3.4   5.4   6.3   8.6    17.8     14.9     2.6      2.1     2.07
  73     47 4125   C  C     0.6     0.2       0.6   1.1   1.7   2.9   4.6   5.2   6.9    19.5     13.8     2.2*     1.8*    1.93*

CARBON MONOXIDE                              INSTRUMENTAL  NONDISPERSIVE INFRA-RED         8-HR-AVG   MG/CU METER (25 C)
42101-11-2-05
  72        5092   1  1     0.6     0.7       0.5   1.5   2.4   3.3   4.7   5.6   7.7    10.4      9.5
  73        4096   C  4     0.6     0.2       0.5   1.4   2.0   2.7   3.5   4.7   6.0     9.1      8.2

SULFUR DIOXIDE                               INSTRUMENTAL  WEST-GAEKE COLORIMETRIC         1-HOUR     UG/CU METER (25 C)
42401-11-1-01
  73     85 7471   C  C      26.     13.       13.   27.   66.  117.  216.  268.  524.    956.     956.      99.      66.     2.8
  74     84 7363   C  C      26.     13.       13.   17.   39.   74.  170.  242.  466.    958.     939.      69.      46.     2.8
  75     24 2138   C  C      26.     13.       13.   45.   76.  108.  168.  212.  311.    417.     396.      86.*     69.*    2.3*

SULFUR DIOXIDE                               INSTRUMENTAL  WEST-GAEKE COLORIMETRIC         24-HR-AVG  UG/CU METER (25 C)
42401-11-X-01
  73         285   7  C      26.     13.       40.   60.   93.  133.  221.  270.  459.    683.     508.     115.      91.     2.0
  74         290   7  4      26.     13.       13.   31.   51.   89.  171.  226.  357.    443.     377.      77.      51.     2.5
  75          87   C  4      26.     13.       40.   72.   97.  120.  168.  187.  292.    292.     218.      99.*     85.*    1.8*
```

"*" Denotes a value derived from data which do not meet SAROAD summarizations criteria of OAQPS Guideline 1.2-040, Sec. 2.3.

Figure 2.3.2.a. Yearly Frequency Distribution Report

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QUARTERLY FREQUENCY DISTRIBUTION

General Description

This report lists the site description and quarterly summary information for all data that satisfy the retrieval criteria. The site description is repeated at the top of each page, followed by the data. The site description gives the geographical information necessary to locate the site and is separated from the data by a data heading. Below the data heading, the codes and names are given for the pollutant, the sampling and analysis methods, the sampling interval, and the standard units in which the data are printed. The data items include: the year/quarter of the data; the percent of observations for continuous data; the number of observations; the number of primary and secondary violations of the NAAQS's; the minimum detectable for the sampling method; the minimum, maximum, and second maximum observations; the 10, 30, 50, 70, 90, 95, and 99 percentiles; the arithmetic mean; the geometric mean; and the geometric standard deviation. The number of violations of the NAAQS's represents the number of violations of the short term standards, and for the running averages, the number of violations are for non-overlapping running averages.

The retrieval and print options which are based on summary criteria are: (1) print all data which meet other selection criteria but do not print the means and standard deviation when summary criteria are not met (default), (2) print all data which meet other selection criteria and flag the statistics when summary criteria are not met, (3) print only data which meet summary criteria, or (4) print only data which fail the summary criteria.

Retrievals Available

The report is generated from data which satisfy the following selection criteria: nation, state, area, site, agency, project, pollutant, method, interval, begin year-quarter, end year-quarter, AQCR and county.

Most combinations of the above selection criteria are valid but the following combinations are invalid: (1) area or county without state, (2) site without state/area, (3) project without agency, and (4) method without pollutant.

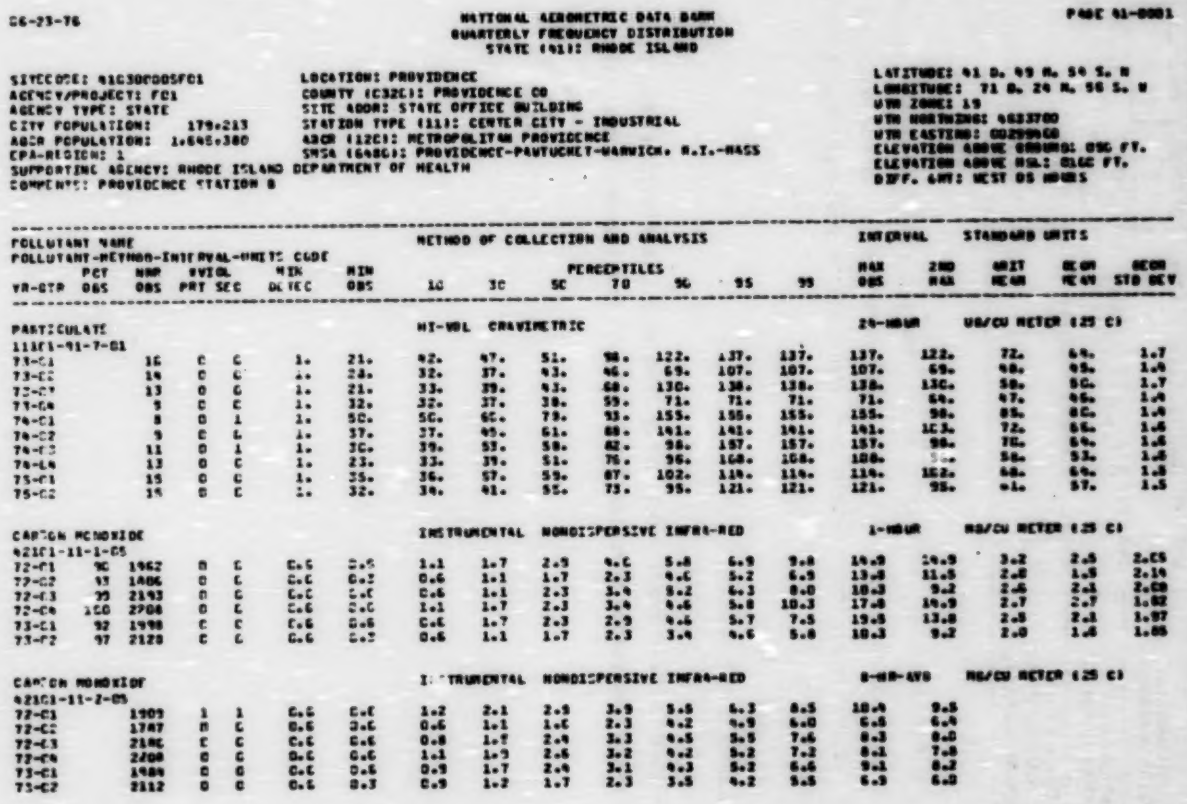
The difference between a state/area and a state/county retrieval is important--a state/area selection will only give the sites which are in that area (city) while a state/county selection will give all state/area combinations located in that county.

Sorts Available

This report may be sorted in ascending (default) or descending order by the following options: state, area, site, agency, project, AQCR, pollutant, method, units, interval, year, quarter, pollutant value, and county code. For this report, the pollutant value sort is on the quarterly maximum observed value. Any number of sorts can be specified in any desired order, but certain sort combinations would produce a confusing report.

Sample Report

Figure 2.3.2.b shows a Quarterly Frequency Distribution Report for particulate and carbon monoxide for a site in Providence, Rhode Island.



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06-23-76                                 NATIONAL AEROMETRIC DATA BANK                                      PAGE 41-0001
                                       QUARTERLY FREQUENCY DISTRIBUTION
                                           STATE (41): RHODE ISLAND

SITECODE: 410300005F01            LOCATION: PROVIDENCE                                   LATITUDE: 41 D. 49 M. 54 S. N
AGENCY/PROJECT: F01               COUNTY (C320): PROVIDENCE CO                           LONGITUDE:  71 D. 24 M. 56 S. W
AGENCY TYPE: STATE                SITE ADDR: STATE OFFICE BUILDING                       UTM ZONE: 19
CITY POPULATION:     179,213      STATION TYPE (11): CENTER CITY - INDUSTRIAL            UTM NORTHING: 4633700
AQCR POPULATION:  1,645,380       AQCR (120): METROPOLITAN PROVIDENCE                    UTM EASTING: 00299060
EPA-REGION: 1                     SMSA (6480): PROVIDENCE-PAWTUCKET-WARWICK, R.I.-MASS   ELEVATION ABOVE GROUND: 056 FT.
SUPPORTING AGENCY: RHODE ISLAND DEPARTMENT OF HEALTH                                     ELEVATION ABOVE MSL: 0160 FT.
COMMENTS: PROVIDENCE STATION 8                                                           DIFF. GMT: WEST 05 HOURS

---------------------------------------------------------------------------------------------------------------------------
POLLUTANT NAME                               METHOD OF COLLECTION AND ANALYSIS              INTERVAL    STANDARD UNITS
POLLUTANT-METHOD-INTERVAL-UNITS CODE
        PCT   NBR   #VIOL     MIN     MIN                      PERCENTILES                    MAX     2ND     ARIT     GEOM     GEOM
YR-QTR  OBS   OBS  PRI SEC   DETEC   OBS      10     30     50     70     90     95     99     OBS     MAX     MEAN     MEAN  STD DEV
---------------------------------------------------------------------------------------------------------------------------

PARTICULATE                                  HI-VOL  GRAVIMETRIC                            24-HOUR     UG/CU METER (25 C)
11101-91-7-01
73-01          16    0   0      1.     21.     42.    47.    51.    98.   122.   137.   137.   137.    122.      72.      64.     1.7
73-02          14    0   0      1.     24.     32.    37.    43.    46.    69.   107.   107.   107.     69.      48.      45.     1.4
73-03          13    0   0      1.     21.     33.    39.    43.    68.   130.   138.   138.   138.    130.      58.      50.     1.7
73-04           5    0   0      1.     32.     32.    37.    38.    55.    71.    71.    71.    71.     64.      47.      46.     1.4
74-01           8    0   1      1.     50.     56.    66.    79.    93.   155.   155.   155.   155.     98.      85.      80.     1.4
74-02           9    0   0      1.     37.     37.    45.    61.    88.   141.   141.   141.   141.    103.      72.      66.     1.6
74-03          11    0   1      1.     30.     39.    53.    58.    82.    98.   157.   157.   157.     98.      70.      64.     1.6
74-04          13    0   0      1.     23.     33.    39.    51.    75.    96.   168.   168.   168.     96.      58.      53.     1.6
75-01          15    0   0      1.     35.     36.    57.    59.    87.   102.   114.   114.   114.    102.      68.      64.     1.5
75-02          15    0   0      1.     32.     34.    41.    55.    73.    95.   121.   121.   121.     95.      61.      57.     1.5

CARBON MONOXIDE                              INSTRUMENTAL  NONDISPERSIVE INFRA-RED          1-HOUR      MG/CU METER (25 C)
42101-11-1-05
72-01   96  1962    0   0      0.5     0.5     1.1    1.7    2.5    4.0    5.8    6.9    9.8    14.9    14.9      3.2      2.5    2.05
72-02   93  1406    0   0      0.0     0.3     0.6    1.1    1.7    2.3    4.6    5.2    6.5    13.8    11.5      2.8      1.5    2.14
72-03   99  2193    0   0      0.0     0.0     0.6    1.1    2.3    3.4    5.2    6.3    8.0    10.3     9.2      2.6      2.1    2.08
72-04  100  2708    0   0      0.6     0.0     1.1    1.7    2.3    3.4    4.6    5.8   10.3    17.8    14.9      2.7      2.7    1.82
73-01   92  1998    0   0      0.6     0.6     0.6    1.7    2.3    2.9    4.6    5.7    7.5    19.5    13.8      2.5      2.1    1.97
73-02   97  2120    0   0      0.6     0.3     0.6    1.1    1.7    2.3    3.4    4.6    5.8    10.3     9.2      2.0      1.6    1.85

CARBON MONOXIDE                              INSTRUMENTAL  NONDISPERSIVE INFRA-RED          8-HR-AVG    MG/CU METER (25 C)
42101-11-2-05
72-01       1903    1   1      0.6     0.0     1.2    2.1    2.5    3.9    5.5    6.3    8.5    10.4     9.5
72-02       1787    0   0      0.6     0.0     0.6    1.1    1.0    2.3    4.2    4.9    6.0     6.5     6.4
72-03       2186    0   0      0.6     0.6     0.8    1.7    2.4    3.3    4.5    5.5    7.6     8.3     8.0
72-04       2208    0   0      0.6     0.6     1.1    1.9    2.6    3.2    4.2    5.2    7.2     8.1     7.8
73-01       1984    0   0      0.6     0.6     0.9    1.7    2.4    3.1    4.3    5.2    6.6     9.1     8.2
73-02       2112    0   0      0.6     0.3     0.9    1.2    1.7    2.3    3.5    4.2    5.5     6.3     6.0
```

Figure 2.3.2.b. Quarterly Frequency Distribution Report

YEARLY REPORT BY QUARTERS

General Description

This report lists the site description and selected summary information for the year and for the individual quarters. The site description is repeated at the top of each page, followed by the data heading and data for each pollutant-year selected. The site description gives the geographical information necessary to locate the site. Below the data heading, the codes and names are given for the pollutant, the sampling and analysis methods, the sampling interval, and the standard units in which the data are printed. The data items include: the year of the data; the percent of observations for continuous data; the minimum detectable limit for the method; the arithmetic mean, arithmetic standard deviation, minimum observation, and maximum observation for the year; and the number of observations and arithmetic mean for each quarter.

The retrieval and print options, which are based on summary criteria, are: (1) print all data which meet other selection criteria but do not print quarterly and yearly statistics which do not meet the summary criteria, (2) print all data which meet other selection criteria and flag the statistics when summary criteria are not met, or (3) print only data which fail the summary criteria with flags on the data.

Retrivals Available

The report may be retrieved based on the following selection criteria: nation, state, area, site, agency, project, pollutant, method, interval, begin year, end year, AQCR, and county.

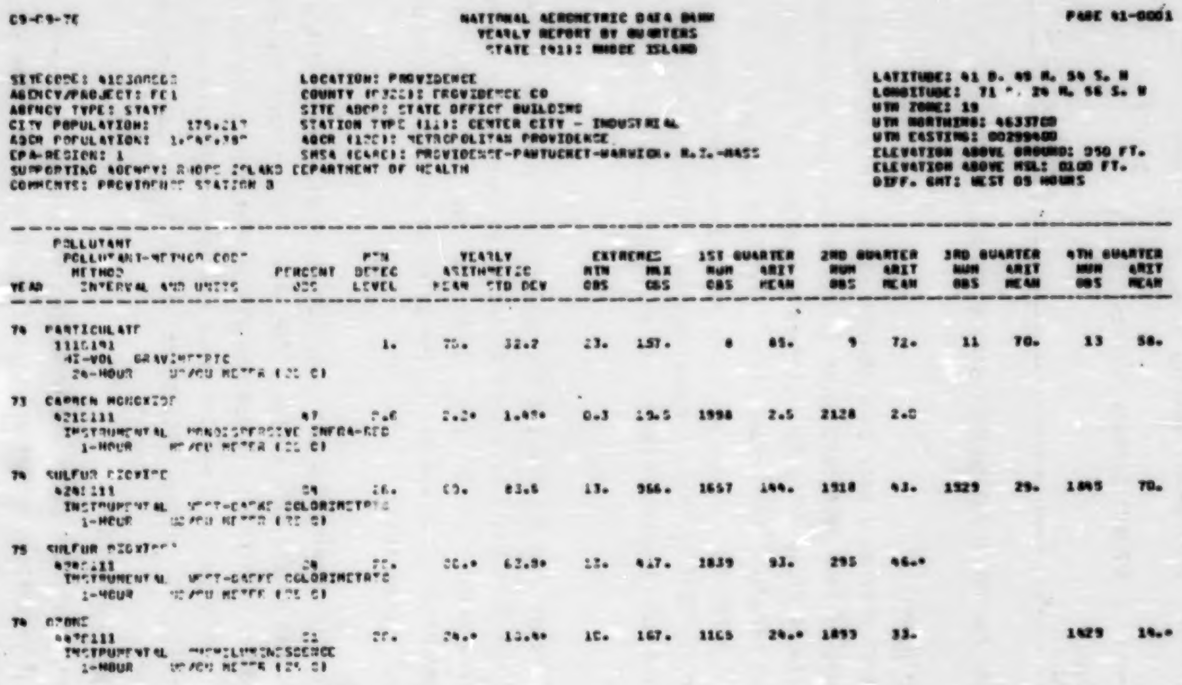
Most of the combinations of the above selection criteria are valid but the following selections are invalid: (1) area or county without state, (2) site without state/area, (3) project without agency, and (4) method without pollutant.

Sorts Available

This report may be sorted in ascending (default) or descending order by the following options: state, area, site, agency, project, AQCR, pollutant, method, units, interval, year, pollutant value, and county code. For this report, the pollutant value sort is on the yearly maximum observed value. Any number of sort options can be specified in any desired order but certain sort combinations would produce a confusing report.

Sample Report

Figure 2.3.2.c shows a Yearly Report by Quarters for particulate, carbon monoxide, sulfur dioxide, and ozone for a site in Providence, Rhode Island.



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09-09-76                                   NATIONAL AEROMETRIC DATA BANK                                   PAGE 41-0001
                                            YEARLY REPORT BY QUARTERS
                                             STATE (41): RHODE ISLAND

SITECODE: 41030[illegible]                  LOCATION: PROVIDENCE                                    LATITUDE: 41 D. 49 M. 54 S. N
AGENCY/PROJECT: F01                         COUNTY (0320): PROVIDENCE CO                            LONGITUDE: 71 °. 24 M. 56 S. W
AGENCY TYPE: STATE                          SITE ADDR: STATE OFFICE BUILDING                        UTM ZONE: 19
CITY POPULATION:    179,213                 STATION TYPE (112): CENTER CITY - INDUSTRIAL            UTM NORTHING: 4633700
AQCR POPULATION:  1,[illegible]             AQCR (120): METROPOLITAN PROVIDENCE                     UTM EASTING: 00299400
EPA-REGION: 1                               SMSA (6480): PROVIDENCE-PAWTUCKET-WARWICK, R.I.-MASS    ELEVATION ABOVE GROUND: 050 FT.
SUPPORTING AGENCY: RHODE ISLAND DEPARTMENT OF HEALTH                                                ELEVATION ABOVE MSL: 0100 FT.
COMMENTS: PROVIDENCE STATION 3                                                                      DIFF. GMT: WEST 05 HOURS

--------------------------------------------------------------------------------------------------------------------------------
      POLLUTANT
       POLLUTANT-METHOD CODE                 MIN        YEARLY        EXTREMES    1ST QUARTER  2ND QUARTER  3RD QUARTER  4TH QUARTER
        METHOD                   PERCENT   DETEC      ARITHMETIC      MIN    MAX    NUM   ARIT    NUM   ARIT   NUM   ARIT   NUM   ARIT
YEAR      INTERVAL AND UNITS       OBS     LEVEL     MEAN  STD DEV    OBS    OBS    OBS   MEAN    OBS   MEAN   OBS   MEAN   OBS   MEAN
--------------------------------------------------------------------------------------------------------------------------------

74   PARTICULATE
      1110191                                1.       75.    32.2     23.   157.      8    85.      9    72.    11    70.    13    58.
       HI-VOL  GRAVIMETRIC
        24-HOUR     UG/CU METER (25 C)

73   CARBON MONOXIDE
      4210111                      47        0.6      2.2*   1.49*    0.3   19.5   1998    2.5   2128    2.8
       INSTRUMENTAL  NONDISPERSIVE INFRA-RED
        1-HOUR     MG/CU METER (25 C)

74   SULFUR DIOXIDE
      4240111                  [illegible]   26.      69.    83.6     13.   966.   1657   144.   1918    43.  1929    29.  1845    70.
       INSTRUMENTAL  WEST-GAEKE COLORIMETRIC
        1-HOUR     UG/CU METER (25 C)

75   SULFUR DIOXIDE
      4240111                  [illegible] [illegible] [illegible] 62.9*  13.  417.   1839    93.    295   46.*
       INSTRUMENTAL  WEST-GAEKE COLORIMETRIC
        1-HOUR     UG/CU METER (25 C)

74   OZONE
      4420111                  [illegible] [illegible] 24.*  13.4*    10.   167.   1165   24.*   1893    33.                1929   14.*
       INSTRUMENTAL  CHEMILUMINESCENCE
        1-HOUR     UG/CU METER (25 C)
```

Figure 2.3.2.c. Yearly Report by Quarters

METEOROLOGICAL AND POLLUTANT SUMMARY STATISTICS PLOT

General Description

This report creates a plot on a CALCOMP plotter or a TEXTRONIX terminal of one of four different combinations of averages of quarterly means for up to 50 sites. The four different combinations are: (1) one meteorological parameter summarized over a specified time period, (2) one meteorological parameter and one pollutant summarized over a time period, (3) two meteorological parameters summarized over a time period, and (4) two meteorological parameters and one pollutant summarized over a time period.

The plot format has a title (at the top) that is supplied by the requestor. Under this title is a list of the sites used in the averages with space for a maximum of 12 sites. Under the site ID's is the list of pollutant-method-interval-units for the selected pollutants and/or parameters that are plotted.

The plot of the parameters and/or pollutant is given next with all parameters plotted on one axis system. The X-axis is utilized for the time scale and the Y-axis is utilized for the parameter or pollutant scale. The minimum scale value and the delta value may be supplied for each parameter or pollutant, or they will be calculated by the plot program.

Retrievals Available

The summary statistic plots are generated for any of the four combinations of parameters and/or pollutants as given above. The selection criteria required include the specific parameters and/or pollutants, the site ID (state-area-site-agency-project) for up to 50 sites, and the time period required. The minimum scale value and the delta value may be specified or left to the computer to calculate.

Sorts Available

No optional sorts are available. The plots are created in the same order as requested by the retrieval options.

Sample Report

Figure 2.3.2.d shows an example of a plot of wind speed and direction for two sites. The absence of a plot for CO indicates that the pollutant was not reported.

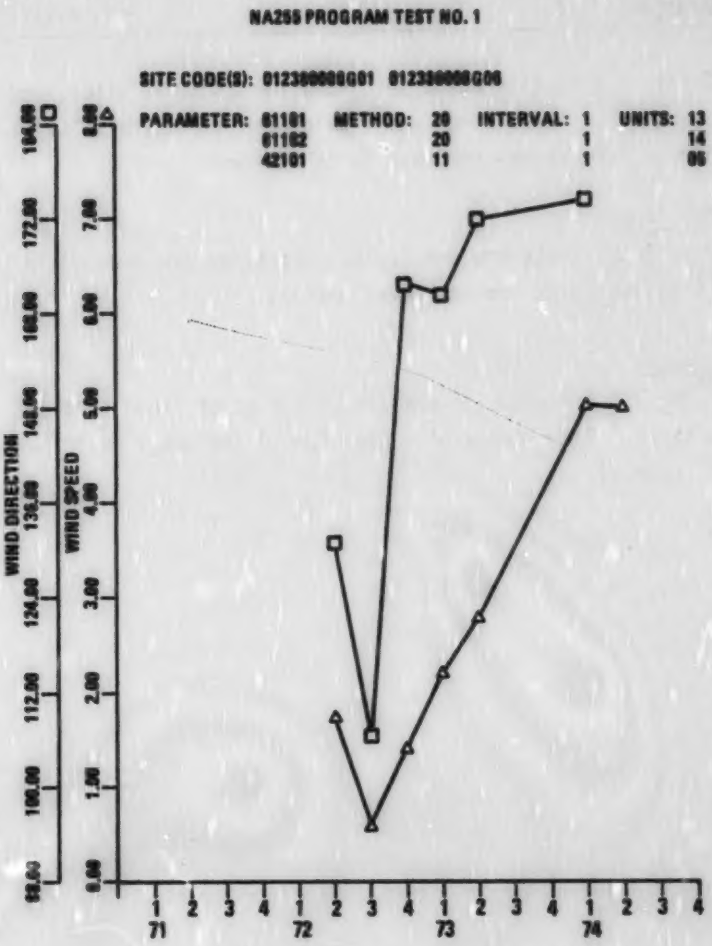


Figure 2.3.2.d. Meteorological and Pollutant Summary Statistics Plot

METEOROLOGICAL AND POLLUTANT FREQUENCY, PERCENT FREQUENCY, AND PLOT REPORTS

General Description

This report creates two unique printouts and a plot on a CALCOMP plotter or TEXTRONIX terminal of two meteorological parameters or a meteorological parameter and a pollutant. The outputs give the frequency of occurrence and percentage frequency of occurrence between a dependent variable and an independent variable. The frequency of occurrence and percentage frequency of occurrence are given for value categories for the dependent and independent variables. Default value categories are included in the program for wind speed, wind direction, dry-bulb temperature, wet-bulb temperature, relative humidity, visibility, and precipitation; and the user must specify the minimum value, increment value, and the number of increments (up to 10) to create the value categories for all other parameters. Any parameter except wind direction may be the dependent variable, and any parameter may be the independent variable.

The program retrieves the specific dependent and independent variables for the site specified for a time period of one month to one year. The dependent and independent variables are sorted by site/month/day and a frequency of occurrence is tabulated for the various value categories. The percentage frequency of occurrence is computed after the frequency of occurrence has been completed.

The program will print the frequency of occurrence and the percentage frequency of occurrence of the dependent and independent variables and create an optional plot of the percentage frequency of occurrence.

A separate page of printout is created for the frequency and percentage frequency reports. The report title is given at the top of the page with the time span covered. Below the time span, a complete site description is printed for the specific site. Below the site description the value categories for the dependent variable are given on the first line and the value categories for the independent are given in the column on the left. The remainder of the report varies with the number of occurrence in each value category given on the frequency report and percentage frequency occurrence in each value category on the percent report. The last column and line give the total number or percent in each value category.

The program will create a single plot of the total percentage frequency of occurrence of the dependent variable versus the independent variable and optional plots of any value categories of the dependent variables as specified by the requestor. The plot gives the site ID, location, time period, sampling interval, the name of the dependent variable, and value category at the top. The actual plot gives the value categories of the independent variable as the scale of the X-axis and the percentage frequency of occurrence as the Y-axis.

Retrievals Available

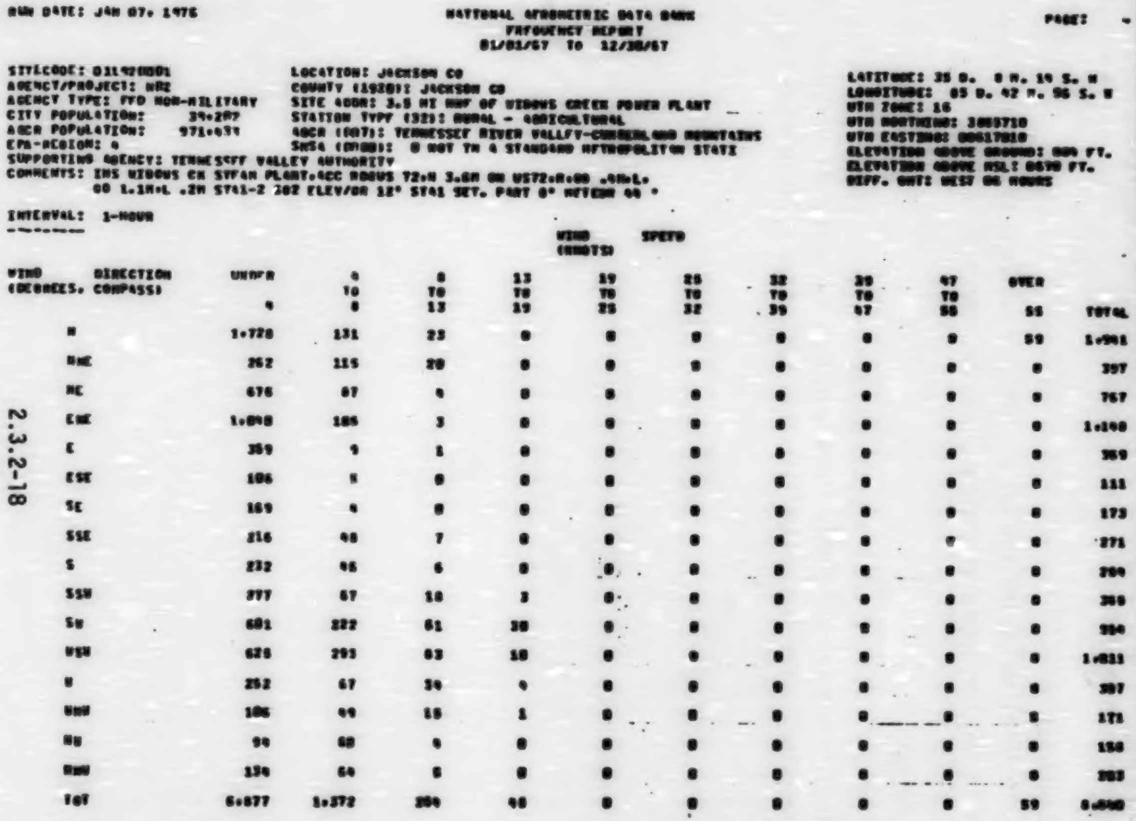
The user must specify the complete site ID; the dependent and independent variables; the year, month, or quarter; the sampling interval; the reports desired (printout and/or plot); the number of the value categories for the plot; and the minimum value, the increment value, and the number of increments (maximum of 10) to create value categories for parameters that have no default categories.

Sorts Available

No optional sorts are available. The printed reports and plots are created in the same order as requested by the retrieval cards.

Sample Report

Figures 2.3.2.e, 2.3.2.f and 2.3.2.g show examples of the frequency, percentage frequency, and plot of wind speed as the dependent variable, and wind direction as the independent variable for a site in Alabama in 1967.



```
RUN DATE: JAN 07, 1976                    NATIONAL AEROMETRIC DATA BANK                         PAGE:   -
                                                FREQUENCY REPORT
                                              01/01/67  TO  12/30/67

SITECODE: 011920001             LOCATION: JACKSON CO                                   LATITUDE: 35 D.  0 M. 19 S. N
AGENCY/PROJECT: N02             COUNTY (1920): JACKSON CO                              LONGITUDE: 85 D. 42 M. 56 S. W
AGENCY TYPE: FED NON-MILITARY   SITE ADDR: 3.5 MI NNF OF WIDOWS CREEK POWER PLANT      UTM ZONE: 16
CITY POPULATION:    39,287      STATION TYPE (32): RURAL - AGRICULTURAL                UTM NORTHING: 3883710
AQCR POPULATION:   971,434      AQCR (007): TENNESSEE RIVER VALLEY-CUMBERLAND MOUNTAINS UTM EASTING: 00617810
EPA-REGION: 4                   SMSA (0000):  0 NOT IN A STANDARD METROPOLITAN STATI   ELEVATION ABOVE GROUND: 000 FT.
SUPPORTING AGENCY: TENNESSEE VALLEY AUTHORITY                                          ELEVATION ABOVE MSL: 0670 FT.
COMMENTS: INS WIDOWS CK STEAM PLANT.ACC ROBUS 72:H 3.6M ON US72:R:00 .4MsL.            DIFF. GMT: WEST 06 HOURS
          00 1.1MsL .2M STA1-2 202 ELEV/OR 12° STA1 SET. PART 0° METEOR 00 •

INTERVAL:  1-HOUR
---------
                                                            WIND      SPEED
                                                           (KNOTS)

WIND      DIRECTION      UNDER      4      8     13     19     25     32     39     47    OVER
(DEGREES, COMPASS)                 TO     TO     TO     TO     TO     TO     TO     TO
                              4     8     13     19     25     32     39     47     55     55   TOTAL

          N               1,728    131     23      0      0      0      0      0      0     59   1,941
          NNE               262    115     20      0      0      0      0      0      0      0     397
          NE                676     87      4      0      0      0      0      0      0      0     767
          ENE             1,040    185      3      0      0      0      0      0      0      0   1,228
          E                 359      9      1      0      0      0      0      0      0      0     369
          ESE               106      5      0      0      0      0      0      0      0      0     111
          SE                169      4      0      0      0      0      0      0      0      0     173
          SSE               216     48      7      0      0      0      0      0      0      0     271
          S                 232     46      6      0      0      0      0      0      0      0     284
          SSW               277     67     18      3      0      0      0      0      0      0     365
          SW                601    222     61     30      0      0      0      0      0      0     914
          WSW               625    293     83     10      0      0      0      0      0      0   1,011
          W                 252     67     34      4      0      0      0      0      0      0     357
          WNW               106     49     15      1      0      0      0      0      0      0     171
          NW                 94     60      4      0      0      0      0      0      0      0     158
          NNW               134     64      5      0      0      0      0      0      0      0     203
          TOT             6,877  1,372    284     48      0      0      0      0      0     59   8,640
```

Figure 2.3.2.e. Meteorological Frequency Report

```
RUN DATE: JAN 07, 1976                        NATIONAL AEROMETRIC DATA BANK                                       PAGE:    5
                                                PERCENT FREQUENCY REPORT
                                                 01/01/67  TO  12/30/67

SITECODE: 011920001            LOCATION: JACKSON CO                                    LATITUDE: 35 D.  0 M. 19 S. N
AGENCY/PROJECT: W02            COUNTY (1920): JACKSON CO                               LONGITUDE:  85 D. 42 M. 36 S. W
AGENCY TYPE: FED NON-MILITARY  SITE ADDR: 3.0 MI NNW OF WIDOWS CREEK POWER PLANT       UTM ZONE: 16
CITY POPULATION:     39,207    STATION TYPE (321): RURAL - AGRICULTURAL                UTM NORTHING: 3885710
AQCR POPULATION:    971,433    AQCR (007): TENNESSEE RIVER VALLEY-CUMBERLAND MOUNTAINS UTM EASTING: 00617010
EPA-REGION: 4                  SMSA (0000):  0 NOT IN A STANDARD METROPOLITAN STATI    ELEVATION ABOVE GROUND: 000 FT.
SUPPORTING AGENCY: TENNESSEE VALLEY AUTHORITY                                          ELEVATION ABOVE MSL: 0670 FT.
COMMENTS: TVA WIDOWS CK STEAM PLANT.ACC ABOVE 72.M 3.0M [illegible]                   DIFF. GMT: WEST 06 HOURS
        [illegible] 1.1M.L .2M ST02-2 S02 ELEV/GR 12' ST41 SFT. PART 0' METEOR 40 .

INTERVAL:  1-HOUR
---------
                                                     WIND      SPEED
                                                    (KNOTS)

WIND       DIRECTION        UNDER       4        8       13        19        25        32       39       47      OVER
(DEGREES, COMPASS)                     TO       TO       TO        TO        TO        TO       TO       TO
                               4        8       13       19        25        32        39       47       55        55     TOTAL
        N                    .20      .02      .00      .00       .00       .00       .00      .00      .00       .01       .22
        NNE                  .03      .01      .00      .00       .00       .00       .00      .00      .00       .00       .04
        NE                   .08      .01      .00      .00       .00       .00       .00      .00      .00       .00       .09
        ENE                  .12      .01      .00      .00       .00       .00       .00      .00      .00       .00       .13
        E                    .04      .00      .00      .00       .00       .00       .00      .00      .00       .00       .04
        ESE                  .01      .00      .00      .00       .00       .00       .00      .00      .00       .00       .01
        SE                   .02      .00      .00      .00       .00       .00       .00      .00      .00       .00       .02
        SSE                  .03      .01      .00      .00       .00       .00       .00      .00      .00       .00       .03
        S                    .03      .01      .00      .00       .00       .00       .00      .00      .00       .00       .03
        SSW                  .03      .01      .00      .00       .00       .00       .00      .00      .00       .00       .04
        SW                   .07      .03      .01      .00       .00       .00       .00      .00      .00       .00       .11
        WSW                  .07      .03      .01      .00       .00       .00       .00      .00      .00       .00       .12
        W                    .03      .01      .00      .00       .00       .00       .00      .00      .00       .00       .04
        WNW                  .01      .01      .00      .00       .00       .00       .00      .00      .00       .00       .02
        NW                   .01      .01      .00      .00       .00       .00       .00      .00      .00       .00       .02
        NNW                  .02      .01      .00      .00       .00       .00       .00      .00      .00       .00       .02
        TOT                  .80      .16      .03      .01       .00       .00       .00      .00      .00       .01      1.00
```

Figure 2.3.2.f. Meteorological Percentage Frequency Report

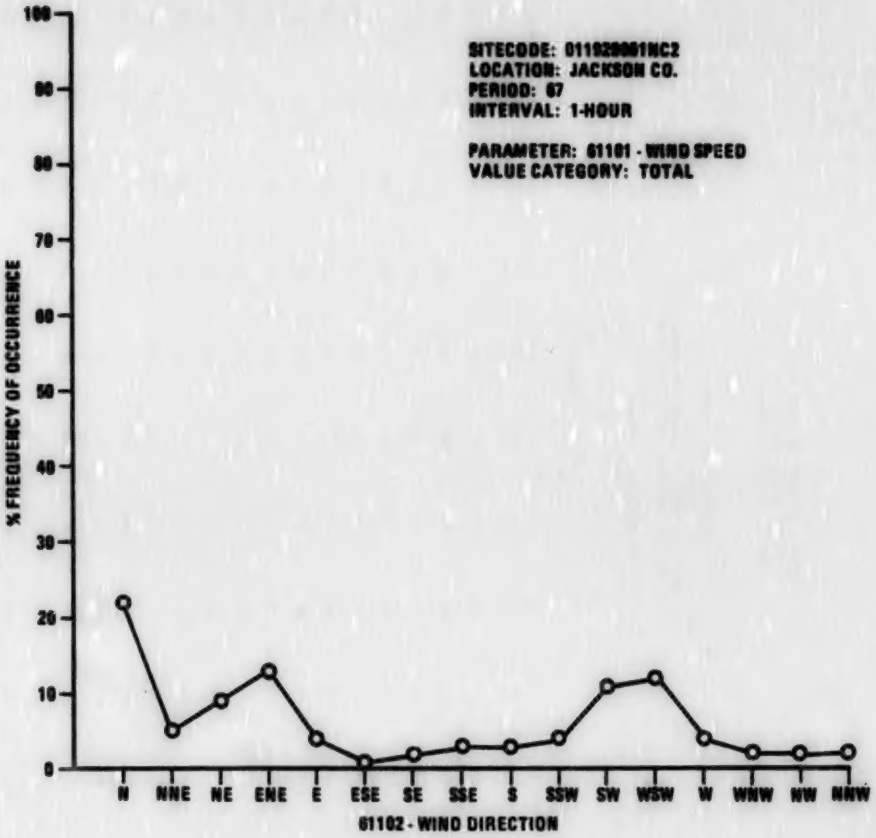


Figure 2.3.2.g. Meteorological Percentage Frequency Plot

2.3.3.1 INVENTORY BY SITE

2.3.3.1.1 GENERAL DESCRIPTION

This report lists, for each state specified, 11 columns of information with one line of data for each unique combination of the following data elements:

a. Site Code (9-digit numeric)
b. Agency/Project Codes (1 alpha, 2 numeric)
c. Location Name (alpha)
d. Pollutant Name (alpha)
e. Pollutant/Method Codes (7 digit numeric combined code)
f. Interval Code (1 numeric)
g. Units Code (2-digit numeric)
h. Year (4-digit number)
i. Number of Observations (numeric)
j. Maximum Observations (numeric)
k. Arithmetic Mean (numeric)

Meanings of all of the above codes are given in Volume V of the AEROS manual.

The data parameters that establish or specify a line of printout constitute the first eight columns of the report page, or items a through h in the above enumeration of the data elements. The arithmetic mean is given for all data with an asterisk marking the values that were obtained from data not meeting minimum summary criteria (see Section 2.3.0).

2.3.3.1.2 RETRIEVALS AVAILABLE

Selections are limited to nationwide, EPA region, or state geographical parameters.

2.3.3.1.3 SORTS AVAILABLE

The data are sorted by Site ID, then by pollutant type within Site. No sort options are available for this report.

2.3.3.1.4 SAMPLE REPORT

Figure 2.3.3.a shows a portion or a retrieval for the State of Rhode Island.

2.3.3.1.5 REMARKS

The Inventory by Site lists for each site the number of years for which data are available for each pollutant. For each ye[illegible]he number or observations and the maximum observed value are printed out. [illegible] this report is sorted by pollutant within Site ID Number, it is most us[illegible]hen information on a particular site or sites is desired.

```
05-08-75                              NATIONAL AEROMETRIC DATA BANK                                    ID:AA1
                                            INVENTORY BY SITE
                                              RHODE ISLAND

----------------------------------------------------------------------------------------------------------
  SITE      AG/          LOCATION                    POLLUTANT          POL-MTH  INT   UNIT  YEAR NUM   MAX        ARITH
  CODE      PRJ           NAME                         NAME              CODE    CODE  CODE       OBS   OBS        MEAN
----------------------------------------------------------------------------------------------------------
410040001  F01   BRISTOL                      PARTICULATE              1110191   7     01   1971  39   177.        62.
                                                                                 7     01   1972  61   101.        40.
                                                                                 7     01   1973  59   267.        43.
                                                                                 7     01   1974  33    91.
410065001  F01   BURRILLVILLE                 PARTICULATE              1110191   7     01   1971  43    90.        47.
                                                                                 7     01   1972  56   143.        38.
                                                                                 7     01   1973  59   128.        33.
                                                                                 7     01   1974  30    85.
410090001  F01   CHARLESTOWN                  PARTICULATE              1110191   7     01   1971  47   253.        48.
                                                                                 7     01   1972  60    88.        26.
                                                                                 7     01   1973  17    58.
                                              SULFUR DIOXIDE           4240191   7     01   1971  25   106.
                                                                                 7     01   1972  56    84.        25.
```

Figure 2.3.3.a. Inventory by Site Report

2.3.3.2 INVENTORY BY POLLUTANT

2.3.3.2.1 GENERAL DESCRIPTION

The format of the output is, in part, identical to that of the Inventory by Site Report as described in paragraph 2.3.3.1.1. Both reports contain a total of 11 columns of data and the six righthand columns contain the same types of information; that is, Interval Code, Units Code, Year, Number of Observations, the Maximum Observation, and the Arithmetic Mean. The lefthand side of the report essentially reverses the order of presentation of the data, because this report is by pollutant rather than by site. Thus, the valid date of the information still appears in the upper lefthand corner of the page, but the heading reads "Inventory by Pollutant" rather than "Inventory by Site," and the next line contains the name of the pollutant instead of the name of the state. (See the following report writeup for an exception to this.) In both reports, the page number appears in the upper righthand corner. In this report, the five lefthand columns contain, respectively, the Pollutant/Method Code, the Pollutant Name, the Site Code, the Agency/Project Code, and the Location Name.

2.3.3.2.2 RETRIEVALS AVAILABLE

Selection by nation, EPA region, state, and by pollutant is possible.

2.3.3.2.3 SORTS AVALIABLE

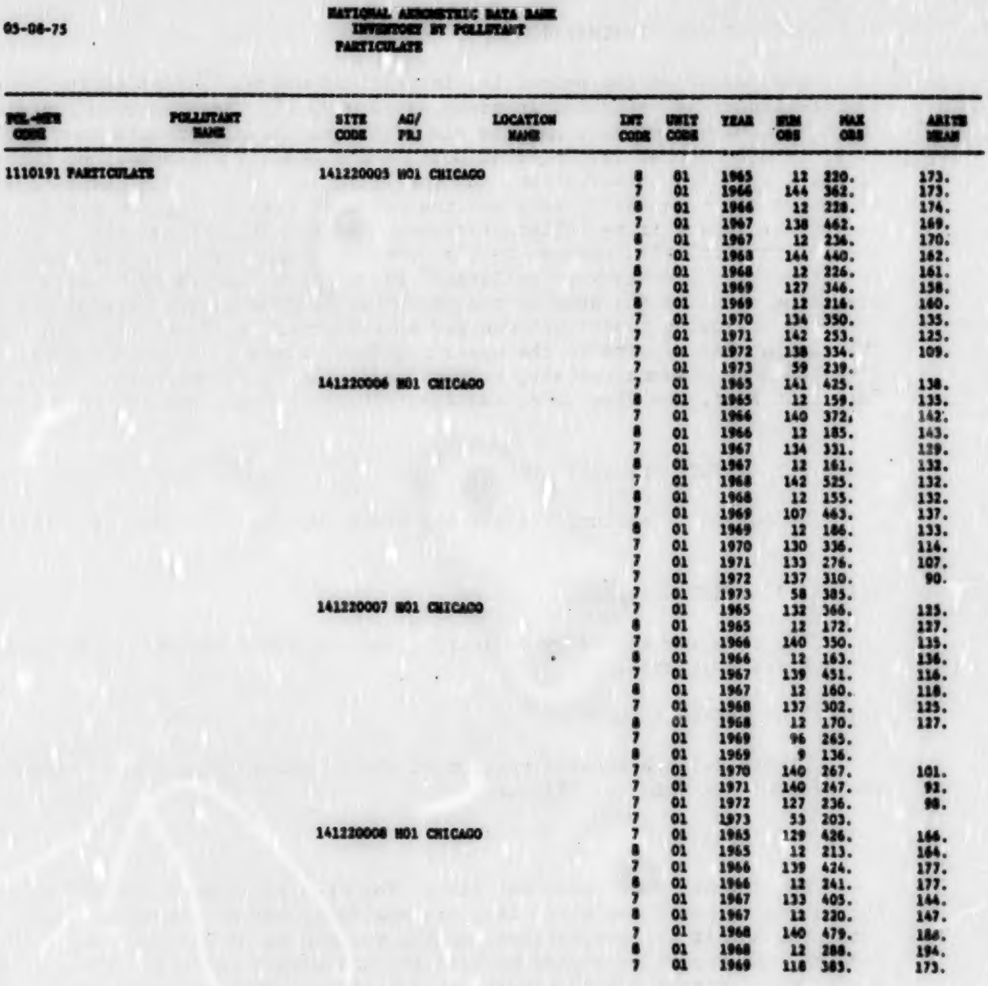
The data are sorted by pollutant, then by state and area. No other sort options are available.

2.3.3.2.4 SAMPLE REPORT

Figure 2.3.3.b shows a portion of the inventory report for particulate measurements in Chicago, Illinois.

2.3.3.2.5 REMARKS

The Inventory by Pollutant lists, for each pollutant-method combination, the number of years for which data are available for each sampling site. For each year, the number of observations and the maximum value observed are printed out. Because this report is sorted by site ID code within pollutant type, it is most useful when information on a particular pollutant or pollutant-method combination is desired.



05-08-75

NATIONAL AEROMETRIC DATA BANK
INVENTORY BY POLLUTANT
PARTICULATE

POL-MTH CODE	POLLUTANT NAME	SITE CODE	AG/ PRJ	LOCATION NAME	INT CODE	UNIT CODE	YEAR	NUM OBS	MAX OBS	ARITH MEAN
1110191	PARTICULATE	141220003	H01	CHICAGO	8	01	1965	12	220.	173.
					7	01	1966	144	362.	173.
					8	01	1966	12	228.	174.
					7	01	1967	138	462.	169.
					8	01	1967	12	236.	170.
					7	01	1968	144	440.	162.
					8	01	1968	12	226.	161.
					7	01	1969	127	346.	158.
					8	01	1969	12	216.	160.
					7	01	1970	136	350.	135.
					7	01	1971	142	253.	125.
					7	01	1972	138	334.	109.
					7	01	1973	59	239.	
		141220006	H01	CHICAGO	7	01	1965	141	425.	138.
					8	01	1965	12	159.	133.
					7	01	1966	140	372.	142.
					8	01	1966	12	185.	143.
					7	01	1967	134	331.	129.
					8	01	1967	12	161.	132.
					7	01	1968	142	525.	132.
					8	01	1968	12	155.	132.
					7	01	1969	107	463.	137.
					8	01	1969	12	186.	133.
					7	01	1970	130	336.	114.
					7	01	1971	133	276.	107.
					7	01	1972	137	310.	90.
					7	01	1973	58	385.	
		141220007	H01	CHICAGO	7	01	1965	132	366.	125.
					8	01	1965	12	172.	127.
					7	01	1966	140	350.	135.
					8	01	1966	12	163.	136.
					7	01	1967	139	451.	116.
					8	01	1967	12	160.	118.
					7	01	1968	137	302.	125.
					8	01	1968	12	170.	127.
					7	01	1969	96	265.	
					8	01	1969	9	136.	
					7	01	1970	140	267.	101.
					7	01	1971	140	247.	92.
					7	01	1972	127	236.	98.
					7	01	1973	53	203.	
		141220008	H01	CHICAGO	7	01	1965	129	426.	166.
					8	01	1965	12	213.	164.
					7	01	1966	139	424.	177.
					8	01	1966	12	241.	177.
					7	01	1967	133	405.	144.
					8	01	1967	12	220.	147.
					7	01	1968	140	479.	186.
					8	01	1968	12	288.	194.
					7	01	1969	116	383.	173.

Figure 2.3.3.b. Inventory By Pollutant Report

2.3.3.3 STATE INVENTORY BY POLLUTANT

2.3.3.3.1 GENERAL DESCRIPTION

This report is identical to that last described (see 2.3.3.2) except that it is for a single state. Accordingly, the title line reflects this difference and the name of the state appears in the heading; otherwise the same format is used as for the Inventory by Pollutant Report.

2.3.3.3.2 RETRIEVALS AVAILABLE

Same as for the Inventory by Pollutant Report (see 2.3.3.2.2).

2.3.3.3.3 SORTS AVAILABLE

The data are sorted by state, then by pollutant area. No other sort options are available.

2.3.3.3.4 SAMPLE REPORT

Figure 2.3.3.c shows a portion of the inventory report for particulates measured in Chicago, Illinois.

2.3.3.3.5 REMARKS

The content and format of this report are identical to those for the preceding report except that the data are for a single state only. Therefore, this report is of greatest value when information on a certain pollutant of pollutants is desired for a single state.

ENVIRONMENTAL PROTECTION AGENCY	SECTION Report Capabilities	SECTION 2	CHAPTER 3	SUBJECT 3
NATIONAL AIR DATA BRANCH	CHAPTER Air Quality Data	DATE		PAGE
VOLUME III. AEROS SUMMARY AND RETRIEVAL MANUAL	SUBJECT Management Reports	9/30/75		6

```
05-08-75                              NATIONAL AEROMETRIC DATA BANK                                       ID:041
                                      STATE INVENTORY BY POLLUTANT
                                                ILLINOIS
-----------------------------------------------------------------------------------------------------------------
POL-MTH     POLLUTANT              SITE      AG/        LOCATION         INT  UNIT  YEAR   NUM    MAX       ARITH
 CODE        NAME.                 CODE      PRJ         NAME           CODE CODE           OBS    OBS.      MEAN
-----------------------------------------------------------------------------------------------------------------
1110191 PARTICULATE              141220002  A10  CHICAGO                  7   01   1971    137  448.       184.
                                                                          7   01   1972    132  897.       169.
                                 141220003  N01  CHICAGO                  7   01   1965    143  355.        98.
                                                                          8   01   1965     12  120.        99.
                                                                          7   01   1966    143  357.       105.
                                                                          8   01   1966     12  120.       100.
                                                                          7   01   1967    136  295.        81.
                                                                          8   01   1967     12   96.        82.
                                                                          7   01   1968    138  497.       100.
                                                                          8   01   1968     12  124.       100.
                                                                          7   01   1969    116  114.        98.
                                                                          8   01   1969     12  121.        96.
                                                                          7   01   1970    138  292.        89.
                                                                          7   01   1971    134  229.        85.
                                                                          7   01   1972    139  295.        78.
                                                                          7   01   1973     57  225.
```

Figure 2.3.3.c. State Inventory by Pollutant

2.3.3.4 SUMMARY REPORT OF VALID DATA

2.3.3.4.1 GENERAL DESCRIPTION

This report uses information in the Quarterly Summary File to produce a tabulation by State, AQCR, and Area (County or City) of coded information, one line for each Site-Pollutant combination, indicating the quantity of data reported for particulates, sulfur dioxide, NO$_x$, CO, HC, OX, and TOX. The time period of interest, which is specified by the user, can be from 1 to 5 years. For each quarter or the year or years for which data were requested, a column of coded data appears. The codes, together with their meanings, are as follows:

a

a. "0" means "No Data"
b. "1" means "Data do not meet Summary Criteria"
c. "2" means "Data do meet Summary Criteria"

The "SITE" and "POLLUTANT" columns contain codes for Agency Type and Project Classification (under "SITE") and for Method of Collection and Analysis and Time Interval (or Period of Observation) (under "POLLUTANT"). The meanings for these codes are given in Volume V of the AEROS Manual.

2.3.3.4.2 RETRIEVALS AVAILABLE

Retrieval may be by the entire nation, for a single state, or by area (that is, city or county), site, agency, or project classification, or any combination of these. If no particular item is specified in one or more of the selection fields, all of the possible items in that field or fields will be retrieved.

2.3.3.4.3 SORTS AVAILABLE

The standard sorting hierarchy is by state, AQCR, area, site number, agency type, project classification code, pollutant type, method code, and time interval, all in ascending numerical or alphabetical order. No options for alternative sorting sequences are available to the user.

2.3.3.4.4 SAMPLE REPORT

Figure 2.3.3.d shows a sample of the "Summary Report of Valid Data" for the State of Rhode Island.

```
05-13-75                                                                                                                    PAGE   1
------------------------------------           SUMMARY REPORT OF VALID DATA
!0=NO DATA                         !           NATIONAL AEROMETRIC DATA BANK
!1=DATA DO NOT MEET SUMMARY CRITERIA!          STATE (41): RHODE ISLAND                                                     T
!2=DATA DO MEET SUMMARY CRITERIA * !                                                                                        O
------------------------------------   SITE     POLLUTANT    . 1970           1971            1972            1973            1974          T
                                       AG/PROJ  METH/INT   -----------     -----------     -----------     -----------     -----------      A
AQCR            AREA                   CODE     CODE       I II III IV     I II III IV     I II III IV     I II III IV     I II III IV      L

 120   BRISTOL                         001/F01  TSP-91/7   0  0  0  0      2  2  2  2      2  2  2  2      2  2  2  2      1  2  2  0      14
 120   BURRILVILLE                     001/F01  TSP-91/7   0  0  0  0      2  2  2  2      2  2  2  2      2  2  2  2      1  2  2  0      14
 120   CHARLESTOWN                     001/F01  TSP-91/7   0  0  0  0      2  2  2  2      2  2  2  2      2  1  0  0      0  0  0  0       9
 120   CHARLESTOWN                     001/F01  SO2-91/7   0  0  0  0      0  0  2  2      2  2  2  2      2  1  0  0      0  0  0  0       7
 120   CHARLESTOWN                     001/F01  NO2-91/7   0  0  0  0      0  0  2  2      2  2  2  2      2  1  0  0      0  0  0  0       7
 120   CRANSTON                        001/F01  TSP-9177   0  0  0  0      2  2  2  2      2  2  2  2      2  2  2  2      1  1  1  0      12
 120   CRANSTON                        001/F01  SO2-91/7   0  0  0  0      2  2  2  2      2  2  2  2      2  2  2  2      1  2  2  0      14
 120   CRANSTON                        001/F01  NO2-84/7   0  0  0  0      0  0  0  0      0  0  0  0      0  0  0  2      1  2  1  0       2
 120   CRANSTON                        001/F01  NO2-91/7   0  0  0  0      2  2  2  2      2  2  2  2      2  2  2  0      0  0  0  0      11
```

Figure 2.3.3.d. Summary Report of Valid Data

2.3.3.5 SUMMARY OF MONITORING ACTIVITY

2.3.3.5.1 GENERAL DESCRIPTION

This report uses information in the Quarterly Summary File to produce a tabulation by state and AQCR for the selected pollutants of the numbers of sites meeting the summary criteria for the quarter selected for study. (The minimum summary criteria are defined in Section 2.3.0.) The result in a nationwide report sorted by AQCR within states for all 55 "states." Each state has its own page in the report, with each AQCR within the state occupying one line of data. There is also a "Total" line at the bottom of each page, but no grand total; that is, only the totals for each state are given.

For each of the pollutant-sampling period combinations, three columns of data are given; these columns are headed "REQ," "PRO," and "RPT," meaning, respectively, "Required by EPA," "Proposed in the State Implementation Plan (SIP) for 1974," and "Reporting to the National Aerometric Data Bank - Based on Quarter X of 197X Data." In the example, the seven possible pollutant-averaging period combinations are:

a. "TSP" (Total Suspended Particulates)
b. "SO2-DAILY"
c. "SO2-HOURLY"
d. "NO2-DAILY"
e. "NO2-HOURLY"
f. "CO-HOURLY"
g. "OX-HOURLY"

2.3.3.5.2 RETRIEVALS AVAILABLE

The report is available only on a nationwide basis at present. The time period is specified by Year and Quarter; for example, 7301, 7404, etc. The data satisfying the summary criteria are tallied by monitoring site for a single quarter of the given calendar year. If data for more than one quarter are needed, a separate run must be made for each quarter.

2.3.3.5.3 SORTS AVAILABLE

As stated in paragraph 2.3.3.5.1, the report is sorted by state and AQCR. This is accomplished under program control, and no other sorts may be specified by the user.

2.3.3.5.4 SAMPLE REPORT

Figure 2.3.3.e shows a portion of this summary report for the State of Arkansas.

```
01-16-75                              SUMMARY OF MONITORING ACTIVITY                                          PAGE   4
                                      NATIONAL AEROMETRIC DATA BANK
                                      STATE (04) : ARKANSAS

AQCR       TSP           SO2-DAILY      SO2-HOURLY      NO2-DAILY       NO2-HOURLY      CO-HOURLY       OX-HOURLY
      -------------   -------------   -------------   -------------   -------------   -------------   -------------
      REQ  PRO  RPT   REQ  PRO  RPT   REQ  PRO  RPT   REQ  PRO  RPT   REQ  PRO  RPT   REQ  PRO  RPT   REQ  PRO  RPT

016     3   10   12     1    1    1     0    0    0     0    0    2     0    0    0     0    0    0     0    0    0
017     2    3    3     1    1    1     0    0    0     0    0    1     0    0    0     0    0    0     0    0    0
018     1    3    6     0    1    3     0    0    0     1    1    3     0    0    0     0    0    0     0    0    0



TOTAL   9   29   49     4    6   10     0    0    0     1    1   11     0    0    0     0    0    0     0    0    0


      REQ = REQUIRED BY EPA
      PRO = PROPOSED IN STATE IMPLEMENTATION
            PLAN FOR 1974
      RPT = REPORTING TO NATIONAL AEROMETRIC
            DATA BANK - BASED ON QUARTER 1 OF 1972
```

Figure 2.3.3.e. Summary of Monitoring Activity Report

2.3.3.6 ACTIVE SITE REPORT

2.3.3.6.1 GENERAL DESCRIPTION

This report consists of a sorted inventory of sites that have reported SAROAD data during a specified time interval. The report is made up of a series of subreports, one for each site, each of which contains a description of the site and summaries of the pollutants measured, methods used, time intervals, units, and numbers of observations reported. Because both retrieval and sorting are under the control of the user, the entries for each site may be different in content and arrangement, although provision may be made for only one type of sorting hierarchy in a single run.

2.3.3.6.2 RETRIEVALS AVAILABLE

There are 10 key items upon which retrieval may be made in this report. These retrieval items are: state, area, site, agency type, project classification, pollutant type, method of collection and analysis, sampling interval, AQCR, and starting and ending dates. Certain combinations of selection keys are prohibited. For example, a site key may be entered only if an area key is also entered, and an area key may be entered only if a state key is also entered. Similarly, a project classification code may be included only if an agency type is also specified, and a method of collection and analysis may be specified only if a pollutant type is also specified. All other combinations may be considered as valid retrievals. The period of interest is specified by year and quarter for the starting and ending dates; for example, "7302 7304" or "6801 7204" would be valid ways of specifying the desired retrieval period. Codes for the various retrieval items are given in Volume V of the AEROS Manual.

2.3.3.6.3 SORTS AVAILABLE

The selected sites may be sorted in a variety of ways before the report is printed out. The six possible codes available for use are:

a. Ascending key STATE
b. Ascending key AREA
c. Ascending key SITE
d. Ascending key AGENCY
e. Ascending key PROJECT
f. Ascending key AQCR

The sort codes may be entered in any order, and the order determines the sorting hierarchy; that is, the first code entered will determine the primary sort, the second one will determine the secondary sort, and so on. There are only two restrictions on the use of the sort codes: at least one sort code must be specified, and each sort code may appear only once for a given run.

2.3.3.6.4 SAMPLE REPORT

Figure 2.3.3.f shows a portion of the inventory report for the State of Rhode Island.

```
DATE: MAY 07, 1975                N A T I O N A L   A E R O M E T R I C   D A T A   B A N K                PAGE: 0007
                    INVENTORY OF SITES REPORTING DATA DURING 1ST QUARTER, 1974    THRU    4TH QUARTER, 1974
                                              STATE(41): RHODE ISLAND

****************************************************************************************************************
****************************************************************************************************************

    SITECODE:  410300005F01                  LATITUDE(D.M.S.):  41 49 54 N           EPA REGION:  01        UTM ZONE:  19
SITE ADDRESS:  STATE OFFICE BUILDING        LONGITUDE(D.M.S.):  71 24 56 W    ELEV ABOVE GROUND:  0050   UTM NORTHING:   4633700
CITY OR AREA:  PROVIDENCE                     CITY POPULATION:    179,213       ELEV ABOVE MSL:  0100   UTM EASTING:  00299400
COUNTY(0320):  PROVIDENCE CO                  AQCR POPULATION:  1,645,380   TIME ZONE(REF GMT):  WEST 05 HOURS
STATION TYPE:  CENTER CITY - INDUSTRIAL             AQCR(120): METROPOLITAN PROVIDENCE
 AGENCY TYPE:  STATE                               SMSA(6480):  PROVIDENCE-PAWTUCKET-WARWICK, R.I.-MASS.
SUPP. AGENCY:  RHODE ISLAND DEPARTMENT OF HEALTH
     COMMENT:  PROVIDENCE STATION B

POL.MTH/INT         POLLUTANT NAME                  METHOD OF COLLECTION AND ANALYSIS        INTERVAL             UNITS            # OBS
***********   ******************************   *****************************************   ********   *********************** *****

11101/91/7    PARTICULATE                      HI-VOL  GRAVIMETRIC                           24-HOUR    UG/CU METER (25 C)          14
111201/81/2   SOILING INDEX (TRANSMISSION)     TAPE SAMPLER  TRANSMITTANCE                    2-HOUR    COHS/1,000 LINEAR FT      3030
42401/11/1    SULFUR DIOXIDE                   INSTRUMENTAL WEST-GAEKE COLORIMETRIC           1-HOUR    UG/CU METER (25 C)        4212
42401/91/7    SULFUR DIOXIDE                   GAS BUBBLER PARAROSANILINE-SULFAMIC ACID      24-HOUR    UG/CU METER (25 C)          18
42602/12/1    NITROGEN DIOXIDE                 INSTRUMENTAL COLORIMETRIC-GRIESS-SALTZMAN      1-HOUR    UG/CU METER (25 C)        1677
44201/11/1    OZONE                            INSTRUMENTAL  CHEMILUMINESCENCE                1-HOUR    UG/CU METER (25 C)        3084
****************************************************************************************************************
```

Figure 2.3.3.f. Active Site Report

Because of the importance in many fields of activity of the air quality data in the SAROAD system, information is required on the quality of those data. QAMIS is an interim system designed to evaluate the existing networks of ambient air quality monitoring sites as the present efforts toward quality control are actually being carried out. The initial purpose was to ascertain the quality control activities of the various agencies that collect ambient air quality data, analyze the data collected, convert the data to SAROAD format, and submit the data to NADB for entry into the SAROAD system. As it is presently organized, the QAMIS system provides NADB with the ability to analyze and summarize quality assurance information and relate it to specific categories of data within the SAROAD system, such as sites, agencies, methods of collection and analysis, etc. QAMIS data collected in early 1974 for only a portion of the agencies, labs, sites, and pollutants in SAROAD. There are no current plans to update the QAMIS files.

The QAMIS data file is organized into agency, laboratory, and site information. The two basic types of reports are the Data Reports and the QCI (Quality Control Index) Reports. The data report includes the QCI data for each agency, laboratory or site. The QCI report contains agency, laboratory, or site ID number and address as well as the QCI scoring report. Each of the 17 reports available through the QAMIS system consists of responses to a set of from 8 to 18 questions, some of which are divided into two or three subparts. Thus, a questionnaire may comprise as many as 23 technical and management questions. The Data Reports include printouts of both the questions and the answers.

The QCI data consist of a numerical score and a letter grade assigned to the answers furnished by the respondee to the questionnaires. A scoring and weighing system is used by NADB to arrive at a quantitative evaluation or indication of the quality of the data produced by a given agency, site, or laboratory. The goal is to have as objective a method as possible for grading the monitoring activities of each agency.

A numerical score ranging in value from 0 to 100 is assigned to each response to a questionnaire, and weighing factors between 1 and 4 are preassigned to each of the questions. The scoring values are also predetermined, and vary depending upon the particular questionnaire being graded. The standard arrangement for the assignment of letter grades to the results of the questionnaires is as follows:

A = 85 and above
B = 70-84
C = 60-69
D = 50-59
F = less than 50

For laboratory-dependent method codes, a pollutant/laboratory score ratio is also included for greater sophistication in grading the questionnaire responses. The standard ratio (if no other values are assigned) is 50/50; like the weighing factors and the grade scales (letter grade breakpoints), the pollutant/laboratory score ratios may be changed as desired. Regular procedures exist for this purpose. Because all eight questionnaires are different from one another, the scoring tables for each are unique. The Opinion Poll is not graded; therefore, no scoring table exists for this questionnarie.

In summary, the system includes provisions for changing the QCI's based on new or revised weighing factors, grading scales, and pollutant/laboratory score ratios.

A single report may be requested, or multiple requests may be made in a single run. In addition to the 17 specific reports discussed in more detail in the following paragraphs, a "Dump" of all data in the QAMIS File may also be requested. For either of these two cases (a Dump or a multiple request) the primary sort is always by the type of report requests, as follows (this is the QAMIS "standard sort"):

a. Agency
b. Laboratory
c. Site
d. Pollutant type in order: TSP, SO_2, NO_2, CO, and OX

For a multi-state request, the second-order sort is by state in order of their code numbers (alphabetical order).

There are no optional sorts available for any of the reports in the QAMIS system.

2.4.1.1 AGENCY REPORTS

2.4.1.1.1 GENERAL DESCRIPTION

The QAMIS File contains answers to 23 technical and managerial questions relating to quality control at each data-collection agency. Included are questions on training, budgeting, personnel, workload, and data transcription procedures. The two types of reports available are the Agency-Data and Agency-QCI reports.

2.4.1.1.2 RETRIEVALS AVAILABLE

The data in these reports may be selected for a single agency, for all agencies in a state, or for all agencies nationwide.

2.4.1.1.3 SORTS AVAILABLE

The available sorts for this report are:

a. State
b. Agency ID Number

2.4.1.1.4 SAMPLE REPORT

Figure 2.4.1.a shows a typical Agency Report. This example is the result of a request for data from all agencies in California. In each report type, the questionnaire is printed out first, followed by the responses in a definite format, different for each type of questionnaire. In this case, the five agencies for which responses were on hand were assigned grades ranging from A to D (scores of 95 and 59, respectively).

** SAMPLE QUESTIONNAIRE **

** SAMPLE QUESTIONNAIRE **

INTERIM
DATA QUALITY INFORMATION SHEET FOR
AIR POLLUTION AGENCIES

1. IN THE CURRENT FISCAL YEAR PERIOD WAS THERE A FORMALIZED AND OPERATIONAL QUALITY CONTROL PROGRAM IN THE AGENCY? (Y OR N)

   A. HOW MANY WHOLE YEAR TERMS HAS A QUALITY CONTROL PROGRAM BEEN IN FORCE?

2. WHERE THERE HAS BEEN A FORMALIZED QUALITY CONTROL PROGRAM IN THE LATEST FISCAL YEAR PERIOD,

   A. APPROXIMATELY WHAT PERCENT OF THE AGENCY'S BUDGET WAS ALLOCATED TO THE QUALITY CONTROL EFFORT?

   B. APPROXIMATELY WHAT PERCENT OF THE AGENCY'S BUDGET WAS ALLOCATED TO THE OVERALL AIR MONITORING EFFORT?

   C. FOR THE ABOVE, IS THERE A DESCRIPTION OF THE PROGRAM PLAN AVAILABLE?

3. IN THE AIR MONITORING PROGRAM ARE PERSONNEL EMPLOYED WHO HAVE A MINIMUM OF THREE HOURS OF UNDERGRADUATE TRAINING IN:

   A. STATISTICS? (Y OR N)

   B. QUALITY CONTROL? (Y OR N)

   C. COMPUTER PROGRAMMING? (Y OR N)

4. IN THE AIR MONITORING PROGRAM OPERATIONS ARE DATA SAMPLES CHECKED, AS A NECESSARY AND ROUTINE STEP, IN ACCORDANCE WITH STANDARDIZED PROCEDURES? (Y OR N)

   IF YES, IS THE METHOD: (A) COMPUTERIZED?
   (B) MANUAL? (A OR B)

5. IN THE AIR MONITORING OPERATION WHAT NUMBER OF PERSONS ARE ASSIGNED TO REVIEW ALL INCOMING SAMPLING DATA?
   (I.E. 1 THRU 8, 9 FOR NINE OR MORE)

6. IS IT A MATTER OF STANDARD PROCEDURE THAT A RANKING AND KNOWLEDGEABLE OFFICER OF THE AGENCY REVIEW AND APPROVE ALL AIR DATA FORMS PRIOR TO SUBMISSION TO EPA? (Y OR N)

7. DOES THE AGENCY EACH QUARTER YEAR SUBMIT TO EPA ALL AIR SAMPLING DATA UTILIZING THE SAROAD FORMAT? (Y OR N)

8. IS THERE A PROCEDURE DESCRIPTION, FLOW DIAGRAM OR OTHER CHART WHICH SHOWS A COMPLETE DATA SEQUENCE FROM POINT OF AQUISITION TO POINT OF SUBMISSION OF DATA TO EPA? (Y OR N)

9. HOW MANY TIMES ARE DATA MANUALLY TRANSCRIBED IN THE ABOVE (8) SEQUENCE?

10. HOW IS THE ACTUAL TRANSCRIPTION OF VALUES ACCOMPLISHED?

    (A) BY NUMBER COPYING
    (B) BY NUMBER DICTATION
    (C) OTHER, EXPLAIN

11. DURING QUARTERLY AIR MONITORING OPERATIONS ESTIMATE THE TYPICAL PERCENT AMOUNT OF SAMPLE DATA THAT IS REJECTED AS INVALID, AND THUS NOT SUBMITTED TO EPA (EXCLUDE EQUIPMENT DOWNTIME DUE TO CALIBRATION OR MAINTENANCE).

12. AS A MATTER OF PROCEDURE ARE AIR QUALITY DATA ROUTINELY PUBLISHED BY THE AGENCY? (Y OR N)

13. HOW MANY MONITORING SITES ARE MAINTAINED BY THE AGENCY?

14. IS THERE A DOCUMENTED PROCEDURE FOR THE INVESTIGATION OF DATA ANAMOLIES? (Y OR N)

15. ARE NUMERICAL COMPUTATIONS ROUTINELY PERFORMED ON THE COLLECTED DATA? (Y OR N)

Figure 2.4.1.a. Agency Reports

```
THURSDAY      MAY 29, 1975                         DATA LISTING FROM AGENCY QUESTIONNAIRE                          PAGE 01

 QUESTION 1    1A   2A   2B   2C   3A   3B   3C   4A   4B   5    6    7    8    9    10   11   12   13   14   15
  NUMBER
                                   --TRAINING--   D    C                                  P                   C
                              D                P  A    H    D           D    D            E              I    O
          Q    P         M    E A  S           R  T    E    A P  D    Q A  D E            R R       M  N P  M
          C    R    Q    O    S V  T           O  A C  C    T E  A    U T  A S  T C       C E  P  N A  V R  P           Q C I
               O    C    N B  C A  A         C G    H  K    A R  T R  A A  T C  R R  H    E J  U  U I  E O  U           - - -
          P    G         I U  R I  T    Q C  O R  S E         S  A E  R    A R  A I  O    N E  B  M N  S C  T
          R         B    T D  I L  I    U O  M A  A C  M    R O    V  T T    I  N P  W    T C  D L    T  T E  A
          O    Y    U    O G  P A  S    A N  P M  M K  E    E N  F I  E O  F P  S T         T  A I  S A  I D  T           S G
          G    E    D    R E  T B  T    L T  U M  P E  T    V N  O E  R    L T  / I  D    D E  T S  I I  G U  I   DATE    C R
STATE/    R    A    G    I T  I L  I    I R  T I  L D  H    I E  R W  L E  O I    O  O    A D  A H  T N  A R  O           O A
AGENCY    A    R    E    N    O E  C    T O  E N  E    O    E L  M    Y P  W O    N  N    T      E  E E  T E  N   MONTH/  R D
 CODE     M    S    T    G    N    S    Y L  R G  S    D    W    S      A    N    S  E    A      D  S D  E    S   YEAR    E E
----      -    -    -    ---  ---  -    ---  ---  ---  -    ---  ---  ---  ---  ---  -    ---  - -  ---  ---  -   ------  ----
05/001    Y    10   02   11   Y    Y    Y    Y    Y    A    3    Y    Y    Y    02   A    04   Y    019  Y    Y   03/74   95-A
05/030    N    --   03   15   -    Y    Y    Y    Y    B    3    Y    N    N    01   A    01   Y    024  N    Y   04/74   59-D
05/330    Y    24   07   15   Y    Y    Y    Y    Y    A    9    Y    N    N    01   A    03   Y    013  Y    Y   04/74   85-A
05/630    N    03   36   42   N    Y    Y    Y    Y    B    2    N    N    Y    01   A    12   Y    -15  N    Y   04/74   63-C
05/650    Y    04   05   20   N    Y    Y    Y    Y    B    3    Y    N    Y    02   B    05   Y    008  N    Y   04/74   77-B

'-'  INDICATES NO RESPONSE TO QUESTION:  '*' INDICATES INSUFFICIENT INFORMATION SUBMITTED TO COMPUTE A QCI
```

Figure 2.4.1.a (continued). Agency Reports

2.4.1.2 LABORATORY REPORTS

2.4.1.2.1 GENERAL DESCRIPTION

The QAMIS file contains responses to 10 standard questions on such subjects as personnel qualifications and equipment availability and usage at laboratories where the raw data collected at the site are reduced and analyzed. The two types of report available are the Lab-Data and Lab-QCI reports.

2.4.1.2.1 RETRIEVALS AVAILABLE

The data may be selected for a single laboratory, for all laboratories within a single state, or for all laboratories nationwide.

2.4.1.2.3 SORTS AVAILABLE

a. State
b. Lab ID

2.4.1.2.4 SAMPLE REPORT

Figure 2.4.1.b shows a typical laboratory report.

** SAMPLE QUESTIONNAIRE ** ** SAMPLE QUESTIONNAIRE **

DATA QUALITY INFORMATION SHEET FOR LABORATORIES

1. IF THE LABORATORY PERFORMS FUNCTIONS OTHER THAN THE ANALYSES OF AIR SAMPLES, ESTIMATE THE PERCENT OF TIME OF ANALYSES OF AIR SAMPLES.

2. IS A MAJORITY OF LAB EQUIPMENT LABELLED ACCORDING TO ITS LAST INSPECTION DATE AND ITS DUE DATE FOR CALIBRATION? (Y OR N)

3. HOW MANY PERSONS DOES THE LABORATORY EMPLOY FOR THE CURRENT FISCAL YEAR PROGRAM?

4. OF THE ABOVE, WHAT NUMBER HAVE ATTENDED FORMAL COURSES ON THE ANALYSES OF AIR POLLUTANTS?

5. FOR THE ABOVE, RANK THE SOURCE OF FORMAL TRAINING: MOST FREQUENT = 1, LEAST = 6

   A. FEDERAL GOVERNMENT SPONSORED
   B. STATE GOVERNMENT SPONSORED
   C. COLLEGE UNDERGRADUATE DEGREE PROGRAM
   D. COLLEGE GRADUATE DEGREE PROGRAM
   E. PROFESSIONAL, TRAINING ASSOCIATION
   F. OTHER (I.E. OJT) SPECIFY

6. ARE FEDERAL REFERENCE METHODS USED: (Y OR N)

   A. TOTAL SUSPENDED PARTICULATES
   B. SULFUR DIOXIDE
   C. NITROGEN DIOXIDE
   D. TOTAL OXIDANT
   E. CARBON MONOXIDE
   F. TOTAL HYDROCARBONS

7. ARE REPLICATES ROUTINELY MADE OF COLORIMETRIC CALIBRATIONS? (Y OR N)

8. IS AN UP-TO-DATE RECORD MAINTAINED OF THE STANDARD DEVIATIONS OF THE CALIBRATION CURVES SLOPE AND INTERCEPT? (Y OR N)

9. ARE CHECKS MADE TO DETERMINE ARITHMETIC ERRORS IN CALCULATIONS FOR OBTAINING CONCENTRATIONS? (Y OR N)

10. IS PERFORMANCE QUALITY CONTROL DATA DOCUMENTED IN A BOUND BOOK? (Y OR N)

Figure 2.4.1.b. Laboratory Reports

```
THURSDAY    MAY 29, 1975                    DATA LISTING FROM LABORATORY QUESTIONNAIRES                               PAGE 01

QUESTION    1    2   3   4   5A  5B  5C  5D  5E   5F  6A  6B  6C  6D  6E  6F   7    8    9  10
NUMBER

           P A               ---- FORMAL TRAINING -------                       C        E
           E I                                                                  A  C     R
           R R       E    A      S                                            R L  A     R    D
           C    E    M    T      T   U                                        E I  L R   O    O
           E A  Q L  P  C T  F   A   N   G                                    P B  I E   R  Q C              Q C I
           N N  U A  L  O E  E   T   D   R          --FEDERAL REFERENCE ----- L R  B C      C U              - - -
           T A  I B  O  U N  D   E   E   A   P S           METHODS            I A  R O   C    M
             L  P E  Y  R D          R   D   R I  O                           C T  A R   H  D E     DATA     S   C
           T Y  M L  N  S A  G   G   G   U   O O  T                           A I  T D   E  A N   RECEIVED   C   R
STATE/LAB  I S  E L  E  E N  O   O   R   A   F N  H   T   S   N               T O  I S   C  T T              O   A
 CODE      M E  N E  N    C  V   V   A   T   E A  E   S   O   O   O   C   H   E N  O     K  A E    MONTH/    R   D
           E S  T D  T    E  T   T   D   E   S L  R   P   2   2   X   O   C     S  N     S    D     YEAR     E   E
 ----      ---  ---  -  ---  -   -   -   -   ---  -   -   -   -   -   -   -   ---  ---   -  ---    -------    -----
 05/C1      99   N   12  12  2   1   3   5    4   6   Y   Y   Y   Y   Y   Y    Y    Y    Y   Y     03/74     88-A
 05/C2      60   N   06  03  1   2   4   5    3   6   Y   Y   Y   Y   Y   Y    Y    Y    Y   Y     04/74     87-A
 05/C3      30   N   23  21  5   4   1   2    6   3   Y   Y   Y   Y   Y   Y    N    Y    Y   Y     04/74     73-B
 05/C4      17   N   04  01  1   6   3   4    5   2   Y   Y   Y   Y   Y   N    Y    N    Y   Y     04/74     68-C
 05/C5      70   N   09  06  6   2   3   4    5   1   Y   Y   Y   Y   N   Y    Y    Y    Y   Y     04/74     85-A

'-'  INDICATES NO RESPONSE TO QUESTION;    '*' INDICATES INSUFFICIENT INFORMATION SUBMITTED TO COMPUTE A QCI
```

Figure 2,4,1,b (continued). Laboratory Reports

2.4.1.3 SITE REPORTS

2.4.1.3.1 GENERAL DESCRIPTION

The QAMIS Site File contains such technical site data as general history, instrumentation, and pollutants monitored. The Site File also contains the technical specifications and engineering procedures used for monitoring each pollutant at the site. The two reports available include the Site-Data Report and the Site-QCI Report.

2.4.1.3.2 RETRIEVALS AVAILABLE

The data may be selected for one site, for all sites in an agency, for all sites in a state, or for all sites in the nation.

2.4.1.3.3 SORTS AVAILABLE

a. State
b. Site ID
c. Agency ID

2.4.1.3.4 SAMPLE REPORT

Figure 2.4.1.c shows a typical Site Report.

** SAMPLE QUESTIONNAIRE **

** SAMPLE QUESTIONNAIRE **

DATA QUALITY INFORMATION SHEET FOR
AIR POLLUTION SITES

1. WHICH OF THE FOLLOWING ARE MONITORED AT THIS SITE? (Y OR N)
    A. TOTAL SUSPENDED PARTICULATE
    B. OXIDANT
    C. NON-METHANE HYDROCARBON
    D. CARBON MONOXIDE
    E. NO-2
    F. SO-2

2. ARE ANY OTHER POLLUTANTS MONITORED AT THIS SITE? (Y OR N)

3. IS THE POWER SUPPLY VOLTAGE TO THE INSTRUMENTS REGULATED? (Y OR N)

4. ARE MANUALS FOR EVERY MONITORING INSTRUMENT READILY AVAILABLE AT THE LOCATION OF THE SAMPLING SITE? (Y OR N)

5. ARE REFERENCE MATERIALS, SUCH AS HANDBOOKS, GUIDELINES, AND OPERATING MANUALS AVAILABLE? (Y OR N)

6. IS A LOGBOOK KEPT FOR THE SITE? (Y OR N)
    IF SO A. DOES IT CONTAIN INFORMATION REGARDING CALIBRATION? (Y OR N)
    B. ARE DAILY ENTRIES MADE? (Y OR N)
    C. IS AN ATTEMPT MADE TO RECORD ALL EVENTS WHICH MIGHT INFLUENCE DATA QUALITY? (Y OR N)

7. THE DATA AQUISITION SYSTEM IS:
    (A) COMPLETELY AUTOMATED
    (B) SEMi-AUTOMATED
    (C) MANUAL

8. IF SOME PORTION OF THE SYSTEM IS NOT AUTOMATED, ARE PREPRINTED FORMS IN USE FOR RECORDING DATA? (Y OR N)

9. ARE SPOT CHECKS CONDUCTED TO DETECT ERRORS IN MANUAL TRANSCRIPTION OF DATA?

10. ON THE AVERAGE, HOW OFTEN ARE ROTAMETERS CLEANED?
    (A) ONCE WHEN INSTALLED
    (B) MONTHLY
    (C) QUARTERLY
    (D) ANNUALLY
    (E) LESS FREQUENTLY THAN ANNUALLY

11. HAVE ANY OF THE CURRENT SITE OPERATORS ATTENDED COURSES DEALING WITH AIR POLLUTION INSTRUMENTATION? (Y OR N)

12. HOW MANY YEARS HAS THE SITE BEEN IN OPERATION AT ITS PRESENT LOCATION?

13. ARE ALL DEVICES WHICH ARE FACTORY CALIBRATED LABELLED WITH DATE OF LAST CALIBRATION AND DATE WHEN RECALIBRATION IS DUE? (Y OR N)

Figure 2.4.1.c. Site Reports

```
THURSDAY          MAY 29, 1975                      DATA LISTING FROM SITE QUESTIONNAIRE                            PAGE 01

          QUESTION            1A 1B 1C 1D 1E 1F 2  3    4  5    6  6A 6B   6C 7    8    9    10 11   12   13
           NUMBER
                              ---- POLLUTANTS ---------                         A    P       R
                                   MONITORED       R       R M                  Q    R       O         O
  SAROAD SITE                                      E       E A                  U    E       T  O T  Y P
    CODE:                        O                 G P  M  F T  L             D I  F P       A  P R  E E
                                 X              O  U O  A  E E  O          E  A S  O R    C  H  E A  A R    L
    STATE/           DATA        I              T  L W  N  R R  G  C  D E  V  T I  R I  S H  E  R I  R A  C A   QUALITY
    AREA/          RECEIVED      D              H  A E  U  E I  B  A  A N  E  A T  M N  P E  T  A N  S T  A B   CONTROL
    SITE/                     T  A        N  S  E  T R  A  N A  O  L  I T  N    I  S T  O C  E  T I    I  L E   INDEX
    AGENCY/         MONTH/    S  N  H  C  O  O  R  E    L  C L  O  I  L R  T    O    E  T K  R  O N  O O  I L
    PROJECT          YEAR     P  T  C  O  2  2  S  D    S  E S  K  B  Y Y  S    N    D    S  S  R G  F N  B S   SCORE GRADE
   ---------         ----     -  -  -  -  -  -  -  ---  -  ---  -  -  ---  -  ---  ---  ---  -  ---  ---  ---   ----- -----
  050500002101       04/74    Y  Y  Y  Y  Y  Y  N   Y   Y   Y   Y  Y   Y   Y   C    Y    Y   B   Y    9    -    96 - A
  050520003F01       03/74    Y  Y  N  Y  Y  Y  Y   N   Y   Y   Y  Y   Y   Y   C    Y    Y   B   Y    3    -    85 - A
  050580001101       04/74    Y  Y  N  Y  Y  N  N   N   Y   Y   Y  Y   N   Y   B    Y    Y   B   Y    4    -    85 - A
  050720001102       04/74    N  N  N  N  N  Y  Y   N   Y   Y   Y  Y   N   Y   C    Y    Y   C   Y    1    -    81 - B
  050900002101       04/74    N  Y  Y  Y  Y  Y  N   Y   Y   Y   Y  Y   Y   Y   C    Y    Y   B   Y    9    -    96 - A
  050920002101       04/74    Y  Y  N  Y  N  Y  Y   N   Y   Y   Y  Y   N   Y   C    Y    Y   C   Y    2    -    83 - B
  051260001F01       03/74    Y  Y  N  Y  Y  N  Y   N   Y   Y   Y  Y   Y   Y   C    Y    Y   B   Y    3    -    85 - A

 '-' INDICATES NO RESPONSE TO QUESTION;  '*' INDICATES INSUFFICIENT INFORMATION SUBMITTED TO COMPUTE A  QCI
```

Figure 2.4.1.c (continued). Site Reports

2.4.1.4 POLLUTANT REPORTS

2.4.1.4.1 GENERAL DESCRIPTION

These reports make use of the data in the QAMIS file to give output data for the selection criteria outlined in the following paragraph. The 10 reports available in this section are:

a. Pollutant (TSP)-Data
b. Pollutant (TSP)-QCI
c. Pollutant (SO_2)-Data
d. Pollutant (SO_2)-QCI
e. Pollutant (NO_2)-Data
f. Pollutant (NO_2)-QCI
g. Pollutant (CO)-Data
h. Pollutant (CO)-QCI
i. Pollutant (OX)-Data
j. Pollutant (OX)-QCI

2.4.1.4.2 RETRIEVALS AVAILABLE

Selection criteria for these reports are as follows:

a. Specific pollutant-method combination at a site
b. All methods for one pollutant
c. All pollutants for one agency
d. All pollutants for one laboratory
e. All pollutants for one site
f. All pollutants in a single state
g. All pollutants nationwide

2.4.1.4.3 SORTS AVAILABLE

a. State
b. Site ID
c. Method
d. Laboratory ID
e. Agency ID Number

A multi-pollutant request is sorted in the order: TSP, SO_2, NO_2, CO, OX.

2.4.1.4.4 SAMPLE REPORT

See Figures 2.4.1.d through 2.4.1.h.

** SAMPLE QUESTIONNAIRE ** **DATA QUALITY INFORMATION SHEET FOR** ** SAMPLE QUESTIONNAIRE **

TOTAL SUSPENDED PARTICULATE MEASUREMENT (HI-VOL SAMPLER ONLY)

1. PREPINTED PARAMETER CODE SHOULD CORRESPOND TO THAT FOUND IN THE SAROAD CODING MANUAL (PARAMETER CODE - 11101).

2. PREPRINTED METHOD CODE SHOULD CORRESPOND TO THAT FOUND IN THE SAROAD CODING MANUAL (METHOD CODE - 91).

3. PRINT BRAND NAME AND MODEL NUMBER OF SAMPLER USED TO MONITOR TSP AT THE SITE.

   A. IS A SECOND SAMPLER AVAILABLE OR PRESENTLY IN USE AT THE SITE? (Y OR N)

4. ARE THE FILTERS CHECKED RANDOMLY FOR SURFACE ALKALINITY? (Y OR N)

5. ARE THE FILTERS VISUALLY INSPECTED FOR IMPERFECTION? (Y OR N)

6. ARE THE FILTERS CONDITIONED BEFORE INITIAL AND FINAL WEIGHING? (Y OR N)

7. ARE ENVELOPES OR FOLDERS IN USE FOR TRANSPORTING FILTERS? (Y OR N)

8. ARE FLOW RATES MEASURED BEFORE AND AFTER SAMPLING PERIOD? (Y OR N)

9. IF THE ANSWER TO NO. 8 IS YES, ESTIMATE THE AVERAGE PERCENT CHANGE IN FLOW RATES

   (A) LASS THAN 10 PERCENT
   (B) 10-20 PERCENT
   (C) GREATER THAN 20 PERCENT

10. ARE ALL WEIGHINGS AND SERIAL NUMBERS OF FILTERS KEPT IN A LOGBOOK AT THE LABORATORY? (Y OR N)

11. IS THERE A LOGBOOK AT EACH SAMPLER TO RECORD FLOWS AND TIMES? (Y OR N)

12. ENTER THE LETTER CORRESPONDING TO THE STATEMENT BELOW THAT MOST CLOSELY ESTIMATES THE FREQUENCY OF FLOW RATE CALIBRATION.

   (A) ONCE WHEN FIRST PURCHASED
   (B) ONCE WHEN PURCHASED THEN AFTER EVERY SAMPLER MODIFICATION
   (C) ONCE WHEN PURCHASED THEN AT REGULAR INTERVALS THEREAFTER

13. WHAT IS THE APPROXIMATE TIME DELAY BETWEEN SAMPLE COLLECTION AND FINAL WEIGHING? (ANSWER IN DAYS)

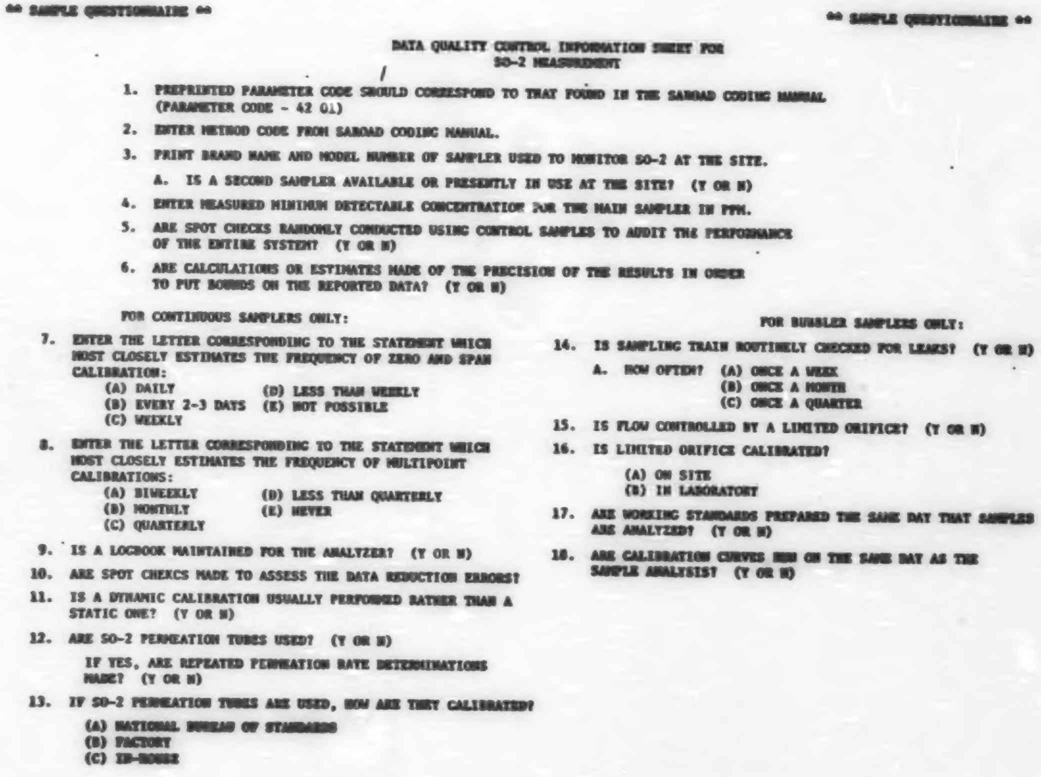
Figure 2.4.1.d. Pollutant Reports (TSP)

```
THURSDAY          MAY 20, 1975          DATA LISTING FOR TSP (11101) QUESTIONNAIRE                         PAGE 01

                              L   QUESTION          3       3A     4     5     6     7    8    9    10    11    12    13
                              A    NUMBER
                          M   B                                                 C              F                C
                          E   O                                   A             O              L                A F
                          T   R                                   L           F N    E    F    O                L R
  SAROAD SITE             H   A                                   K           I D    N    L    W                I E         Q C I
    CODE:                 O   T                                 S A C         L I    V    O         F L   L   B Q
                          D   O                             S A   L H   V     T T    E    W    C    I O F O   R U
    STATE/      DATA          R                             E M   I E   I C   E I    L    R    H    L G L G   A E   T D   S   G
    APEA/     RECEIVED    C   Y                             C P   N C   S H   R O    O    A    A    T B O B   T N   I E   C   R
    SITE/                 O          SAMPLER      SAMPLER   O L   I K   U E   S N    P    T    N    E O W O   I C   M L   O   A
    AGENCY/     MONTH/    D   I      BRAND        MODEL     N E   T     A C     E    E    E    G    R O S O   O Y   E A   R   D
    PROJECT     YEAR      E   D      NAME         NUMBER    D R   Y     L K     D    S    S    E    S K   K   N       Y   E   E
------------    -------   --  --  --------------  --------   ---   ---   ---   ---   -    -    -    ---   ---   ---   ---   -----
500080001F01    06/74     91  20  GENERAL METALS  GMW 2000   Y     Y     Y     Y     Y    Y    B     Y     N     B    01     85-A
500280002F01    06/74     91  10  GENERAL METALS  GMW 2000   Y     Y     Y     Y     Y    Y    B     Y     N     B    01     85-A
500280003F03    06/74     91  10  GENERAL METALS  GMW 2000   Y     Y     Y     Y     Y    Y    B     Y     N     B    01     85-A
500280005F01    06/74     91  10  GENERAL METALS  GMW 2000   Y     Y     Y     Y     Y    Y    B     Y     N     B    01     85-A
500360001F01    06/74     91  10  GENERAL METALS  GMW 2000   Y     Y     Y     Y     Y    Y    B     Y     N     B    01     85-A
500460001F02    06/74     91  10  GENERAL METALS  GMW 2000   Y     Y     Y     Y     Y    Y    B     Y     N     B    01     85-A
500480002F02    06/74     91  10  GENERAL METALS  GMW 2000   Y     Y     Y     Y     Y    Y    B     Y     N     B    01     85-A

'-' INDICATES NO RESPONSE TO QUESTION:  '*' INDICATES INSUFFICIENT INFORMATION SUBMITTED TO COMPUTE A QCI
```

Figure 2.4.1.d (continued). Pollutant Reports (TSP)



** SAMPLE QUESTIONNAIRE **

** SAMPLE QUESTIONNAIRE **

DATA QUALITY CONTROL INFORMATION SHEET FOR
SO-2 MEASUREMENT

1. PREPRINTED PARAMETER CODE SHOULD CORRESPOND TO THAT FOUND IN THE SAROAD CODING MANUAL (PARAMETER CODE - 42 01)
2. ENTER METHOD CODE FROM SAROAD CODING MANUAL.
3. PRINT BRAND NAME AND MODEL NUMBER OF SAMPLER USED TO MONITOR SO-2 AT THE SITE.
   A. IS A SECOND SAMPLER AVAILABLE OR PRESENTLY IN USE AT THE SITE? (Y OR N)
4. ENTER MEASURED MINIMUM DETECTABLE CONCENTRATION FOR THE MAIN SAMPLER IN PPM.
5. ARE SPOT CHECKS RANDOMLY CONDUCTED USING CONTROL SAMPLES TO AUDIT THE PERFORMANCE OF THE ENTIRE SYSTEM? (Y OR N)
6. ARE CALCULATIONS OR ESTIMATES MADE OF THE PRECISION OF THE RESULTS IN ORDER TO PUT BOUNDS ON THE REPORTED DATA? (Y OR N)

FOR CONTINUOUS SAMPLERS ONLY:

7. ENTER THE LETTER CORRESPONDING TO THE STATEMENT WHICH MOST CLOSELY ESTIMATES THE FREQUENCY OF ZERO AND SPAN CALIBRATION:
   (A) DAILY
   (B) EVERY 2-3 DAYS
   (C) WEEKLY
   (D) LESS THAN WEEKLY
   (E) NOT POSSIBLE
8. ENTER THE LETTER CORRESPONDING TO THE STATEMENT WHICH MOST CLOSELY ESTIMATES THE FREQUENCY OF MULTIPOINT CALIBRATIONS:
   (A) BIWEEKLY
   (B) MONTHLY
   (C) QUARTERLY
   (D) LESS THAN QUARTERLY
   (E) NEVER
9. IS A LOGBOOK MAINTAINED FOR THE ANALYZER? (Y OR N)
10. ARE SPOT CHEKCS MADE TO ASSESS THE DATA REDUCTION ERRORS?
11. IS A DYNAMIC CALIBRATION USUALLY PERFORMED RATHER THAN A STATIC ONE? (Y OR N)
12. ARE SO-2 PERMEATION TUBES USED? (Y OR N)

    IF YES, ARE REPEATED PERMEATION RATE DETERMINATIONS MADE? (Y OR N)
13. IF SO-2 PERMEATION TUBES ARE USED, HOW ARE THEY CALIBRATED?
    (A) NATIONAL BUREAU OF STANDARDS
    (B) FACTORY
    (C) IN-HOUSE

FOR BUBBLER SAMPLERS ONLY:

14. IS SAMPLING TRAIN ROUTINELY CHECKED FOR LEAKS? (Y OR N)
    A. HOW OFTEN?
       (A) ONCE A WEEK
       (B) ONCE A MONTH
       (C) ONCE A QUARTER
15. IS FLOW CONTROLLED BY A LIMITED ORIFICE? (Y OR N)
16. IS LIMITED ORIFICE CALIBRATED?
    (A) ON SITE
    (B) IN LABORATORY
17. ARE WORKING STANDARDS PREPARED THE SAME DAY THAT SAMPLES ARE ANALYZED? (Y OR N)
18. ARE CALIBRATION CURVES RUN ON THE SAME DAY AS THE SAMPLE ANALYSIS? (Y OR N)

Figure 2.4.1.e. Pollutant Reports (SO_2)

DATA LISTING FOR SO-2 (42401) QUESTIONNAIRE CONTINUOUS SAMPLERS - BUBBLER SAMPLERS -

SAROAD SITE CODE: STATE/ AREA/ SITE/ AGENCY/ PROJECT	DATA RECEIVED MONTH/ YEAR	METHOD CODE	LABORATORY ID	QUESTION NUMBER SAMPLER BRAND NAME	3 SAMPLER MODEL NUMBER	3A 2ND SAMPLER	4 MINIMUM CONCENTR	5 SPOT CHECKS	6 PRECISION	7 ZERO SPAN	8 MULTI POINT	9 LOGBOOK	10 DATA CHECKS	11 CALIBRATION	12 PERM TUBES	A REPEATED	13 TUBES CALIB	14 LEAKS CLECK	A HOW OFTEN	15 LIN ORIFICE	16 ORIFICE CAL	17 STANDARDS	18 CAL CURVES	QCI SCORE GRADE
163120021002	04/74	91	01	[illegible]	[illegible]	N	.0100	Y	N	-	-	-	-	-	-	-	-	Y	A	Y	B	Y	Y	87-A

Figure 2.4.1.e (continued). Pollutant Report (SO_2)

SAMPLE QUESTIONNAIRE ** DATA QUALITY CONTROL INFORMATION SHEET FOR NO-2 MEASUREMENT ** SAMPLE QUESTIONNAIRE

1. PREPRINTED PARAMETER CODE SHOULD CORRESPOND TO THAT FOUND IN THE SAROAD CODING MANUAL (PARAMETER CODE - 42602).

2. ENTER METHOD CODE FROM SAROAD CODING MANUAL.

3. PRINT BRAND NAME AND MODEL NUMBER OF SAMPLER USED TO MONITOR NO-2 AT THE SITE.

    A. TO A SECOND SAMPLER AVAILABLE OR PRESENTLY IN USE AT THE SITE? (Y OR N)

4. ENTER MEASURED MINIMUM DETECTABLE CONCENTRATION FOR THE MAIN SAMPLER IN PPM.

5. ARE PERMEATION TUBES USED FOR CALIBRATION? (Y OR N)

    A. IF YES, ARE REPEATED PERMEATION RATE DETERMINATIONS MADE? (Y OR N)

6. ARE DUCT CHECKS CONDUCTED RANDOMLY USING CONTROL SAMPLES TO AUDIT THE PERFORMANCE OF THE ENTIRE SYSTEM? (Y OR N)

7. ARE ANY CALCULATIONS OR ESTIMATES MADE OF THE PRECISION OF THE RESULTS IN ORDER TO PUT BOUNDS ON THE REPORTED DATA? (Y OR N)

FOR BUBBLER SAMPLERS ONLY:

8. IS THE SAMPLING TRAIN ROUTINELY CHECKED FOR LEAKS? (Y OR N)
    A. HOW OFTEN? (A) ONCE A WEEK
        (B) ONCE A MONTH
        (C) ONCE A QUARTER

9. IS FLOW CONTROLLED BY A LIMITED ORIFICE? (Y OR N)

10. IS LIMITED ORIFICE CALIBRATED
    (A) ON SITE
    (B) IN LABORATORY

FOR CONTINUOUS SAMPLERS ONLY:

11. ENTER THE LETTER CORRESPONDING TO THE STATEMENT BELOW WHICH MOST CLOSELY ESTIMATES THE FREQUENCY OF ZERO AND SPAN CALIBRATIONS:
    (A) DAILY (D) LESS THAN WEEKLY
    (B) EVERY 2-3 DAYS (E) NOT POSSIBLE
    (C) WEEKLY

12. ENTER THE LETTER CORRESPONDING TO THE STATEMENT BELOW WHICH MOST CLOSELY ESTIMATES THE FREQUENCY OF MULTIPOINT CALIBRATIONS:
    (A) BIWEEKLY (D) LESS OFTEN THAN QUARTERLY
    (B) MONTHLY (E) NEVER
    (C) QUARTERLY

13. IS A LOGBOOK MAINTAINED FOR THE ANALYZER TO INCLUDE CALIBRATION DATA, DOWNTIME, AND COMMENTS? (Y OR N)

14. ARE SPOT CHECKS MADE TO ASSESS DATA REDUCTION ERRORS? (Y OR N)

Figure 2.4.1.f. Pollutant Report (NO_2)

```
TUESDAY      AUGUST 19, 1975                 DATA LISTING FOR NO-2 (42602) QUESTIONNAIRES
                                                                                      BUBBLER          CONTINUOUS      PAGE 01
                                                                                   ---SAMPLERS---    ---SAMPLERS---
                                     L    QUESTION            3          3A  4    5  5A  6   7   8  8A  9   10   11  12  13  14
                                   M A    NUMBER                         2            S       L      L   O        D
                                   E B                                   N        P   P       E      I   R       M      A
                                   T O                                   D        E   O   P   A  H   M   I    Z  U      T
                                   H R                                         C  R R T   R   K  O       F    E  L      A
                                   O A                                   S   N O  M E     E   S  W   O   I    R  T  L
                                   D T                                   A   I N    P C   C          R   C    O  I  O  C    Q C I
                                     O                                   M   N C  T E H   I   C  O   I   E       P  G  H    - - -
   SAROAD SITE                     C R                                   P   I E  U A E   S   H  F   F        S  O  B  E    S   G
      CODE:                        O Y                                   L   M N  B T C   I   E  T   I   C    P  I  O  C    C   R
                         DATA      D                                     E   U T  E E K   O   C  E   C   A    A  N  O  K    O   A
     STATE/            RECEIVED    E  I   SAMPLER       SAMPLER          R   M R  S D S   N   K  N   E   L    N  T  K  S    R   D
      AREA/                           D   BRAND         MODEL                                                               E   E
      SITE/            MONTH/             NAME          NUMBER
     AGENCY/           YEAR
     PROJECT
---------------        -------    --  --  ------------  ----------       --  ---- -  -  -   -   -  -   -   -    -  -  -  -    ------
  361220018H01          03/74     84  06  PEDCO                          N  .0100 Y  Y  Y   Y   Y  A   N   -    -  -  -  -    99-A
  361220020H01          03/74     84  06  MONITOR LABS  0000008100       N  .0100 Y  Y  Y   Y   -  -   -   -    C  A  Y  Y    99-*
  361280032H01          03/74     84  06  PEDCO                          N  .0100 Y  Y  Y   Y   Y  A   N   -    -  -  -  -    99-A
  361300001H01          03/74     84  05  TECHRAFT 5 GAS BUB             N  .0100 N  -  Y   N   Y  A   Y   B    -  -  -  -    80-B

 '-' INDICATES NO RESPONSE TO QUESTION;       '*' INDICATES INSUFFICIENT INFORMATION SUBMITTED TO COMPUTE A QCI
```

Figure 2.4.1.f (continued). Pollutant Report (NO_2)

** SAMPLE QUESTIONNAIRE ** DATA QUALITY CONTROL INFORMATION SHEET FOR CARBON MONOXIDE MEASUREMENT ** SAMPLE QUESTIONNAIRE **

1. PREPRINTED PARAMETER CODE SHOULD CORRESPOND TO THAT FOUND IN THE SAROAD CODING MANUAL (PARAMETER CODE - 42101).

2. ENTER METHOD CODE FROM SAROAD CODING MANUAL.

3. PRINT BRAND NAME AND MODEL NUMBER OF SAMPLER USED TO MONITOR CO AT THE SITE.

   A. IS A SECOND SAMPLER AVAILABLE OR PRESENTLY IN USE AT THE SITE? (Y OR N)

4. ENTER MEASURED MINIMUM DETECTABLE CONCENTRATION FOR THE MAIN SAMPLER IN PPM.

5. ARE CALIBRATION GASES CHECKED FOR ACCURACY WHEN PURCHASED? (Y OR N)

6. IF THE NDIR METHOD IS USED, ARE REGULAR CHECKS MADE TO DETERMINE INTERFERENCE FROM WATER VAPOR? (Y OR N)

7. IS STRIP CHART DATA REGULARLY SPOT CHECKED FOR DATA REDUCTION ERRORS? (Y OR N)

8. ENTER THE LETTER CORRESPONDING TO THE STATEMENT BELOW WHICH MOST CLOSELY ESTIMATES THE FREQUENCY OF ZERO AND SPAN CALIBRATIONS:
   (A) DAILY
   (B) EVERY 2-3 DAYS
   (C) WEEKLY
   (D) LESS THAN WEEKLY
   (E) NEVER

9. ENTER THE LETTER CORRESPONDING TO THE STATEMENT BELOW WHICH MOST CLOSELY ESTIMATES THE FREQUENCY OF MULTIPOINT CALIBRATIONS:
   (A) BIWEEKLY
   (B) MONTHLY
   (C) QUARTERLY
   (D) LESS THAN QUARTERLY
   (E) NEVER

10. IS A LOGBOOK MAINTAINED FOR THE ANALYZER TO INCLUDE CALIBRATION DATA, DOWNTIME, AND COMMENTS? (Y OR N)

11. ARE ANY CALCULATIONS OR ESTIMATES MADE OF THE PRECISION OF THE RESULTS IN ORDER TO PUT BOUNDS ON THE REPORTED DATA? (Y OR N)

12. ARE SPOT CHECKS RANDOMLY CONDUCTED USING CONTROL SAMPLES TO AUDIT THE PERFORMANCE OF THE ENTIRE SYSTEM? (Y OR N)

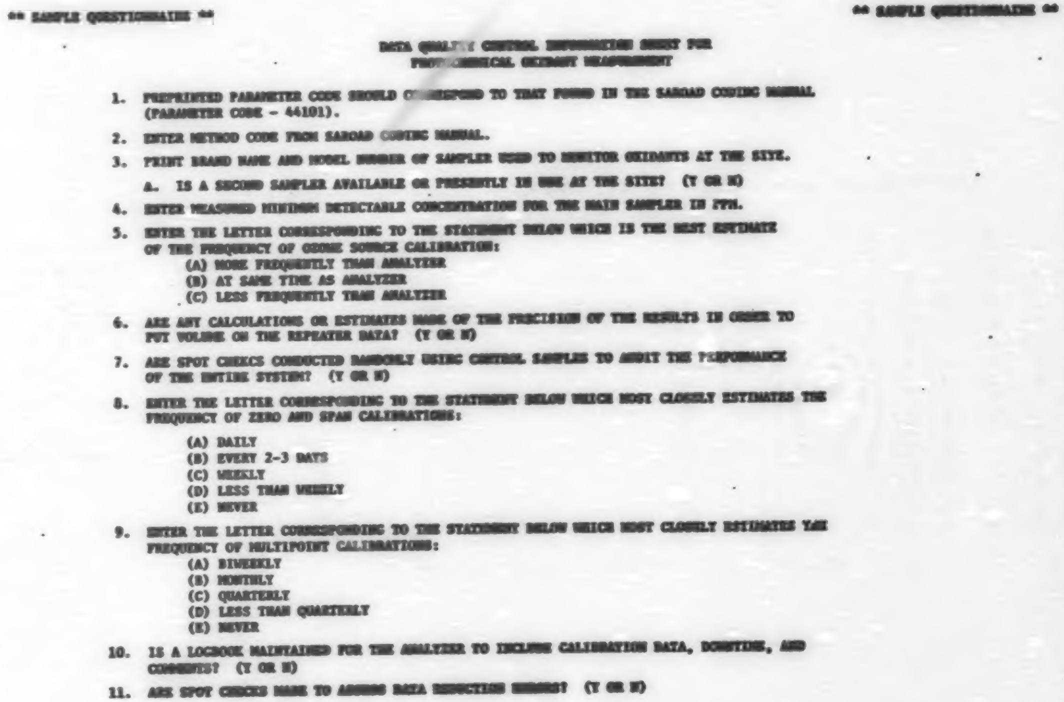
Figure 2.4.1.g. Pollutant Report (CO)

DATA LISTING FOR CO (42101) QUESTIONNAIRE

PAGE 01

SAROAD SITE CODE: STATE/ AREA/ SITE/ AGENCY/ PROJECT	DATA RECEIVED MONTH/ YEAR	METHOD CODE	LABORATORY ID	QUESTION NUMBER 3 SAMPLER BRAND NAME	SAMPLER MODEL NUMBER	3A 2ND SAMPLER	4 MINIMUM CONCENTR	5 CASES CHECK	6 VAPOR CHECK	7 DATA CHECK	8 ZERO SPAN	9 MULTIPOINT	10 LOGBOOK	11 PRECISION	12 SPOT CHECKS	QCI SCORE GRADE
361220020H01	03/74	11	04	INTERTECH VRAS	0000000002	N	.5000	Y	Y	Y	C	C	Y	Y	Y	94-A
361300013H01	03/74	11	05	MSA LIRA	202	N	.5000	N	N	Y	A	C	Y	N	Y	64-C
361300033H01	03/74	11	05	MSA LIRA	202	N	.5000	N	N	Y	A	C	Y	N	Y	64-C

Figure 2.4.1.g (continued). Pollutant Report (CO)



** SAMPLE QUESTIONNAIRE ** ** SAMPLE QUESTIONNAIRE **

DATA QUALITY CONTROL INFORMATION SHEET FOR
PHOTOCHEMICAL OXIDANT MEASUREMENT

1. PREPRINTED PARAMETER CODE SHOULD CORRESPOND TO THAT FOUND IN THE SAROAD CODING MANUAL (PARAMETER CODE - 44101).
2. ENTER METHOD CODE FROM SAROAD CODING MANUAL.
3. PRINT BRAND NAME AND MODEL NUMBER OF SAMPLER USED TO MONITOR OXIDANTS AT THE SITE.
   A. IS A SECOND SAMPLER AVAILABLE OR PRESENTLY IN USE AT THE SITE? (Y OR N)
4. ENTER MEASURED MINIMUM DETECTABLE CONCENTRATION FOR THE MAIN SAMPLER IN PPM.
5. ENTER THE LETTER CORRESPONDING TO THE STATEMENT BELOW WHICH IS THE BEST ESTIMATE OF THE FREQUENCY OF OZONE SOURCE CALIBRATION:
   (A) MORE FREQUENTLY THAN ANALYZER
   (B) AT SAME TIME AS ANALYZER
   (C) LESS FREQUENTLY THAN ANALYZER
6. ARE ANY CALCULATIONS OR ESTIMATES MADE OF THE PRECISION OF THE RESULTS IN ORDER TO PUT VOLUME ON THE REPEATER DATA? (Y OR N)
7. ARE SPOT CHEKCS CONDUCTED RANDOMLY USING CONTROL SAMPLES TO AUDIT THE PERFORMANCE OF THE ENTIRE SYSTEM? (Y OR N)
8. ENTER THE LETTER CORRESPONDING TO THE STATEMENT BELOW WHICH MOST CLOSELY ESTIMATES THE FREQUENCY OF ZERO AND SPAN CALIBRATIONS:
   (A) DAILY
   (B) EVERY 2-3 DAYS
   (C) WEEKLY
   (D) LESS THAN WEEKLY
   (E) NEVER
9. ENTER THE LETTER CORRESPONDING TO THE STATEMENT BELOW WHICH MOST CLOSELY ESTIMATES THE FREQUENCY OF MULTIPOINT CALIBRATIONS:
   (A) BIWEEKLY
   (B) MONTHLY
   (C) QUARTERLY
   (D) LESS THAN QUARTERLY
   (E) NEVER
10. IS A LOGBOOK MAINTAINED FOR THE ANALYZER TO INCLUDE CALIBRATION DATA, DOWNTIME, AND COMMENTS? (Y OR N)
11. ARE SPOT CHECKS MADE TO ASSESS DATA REDUCTION ERRORS? (Y OR N)

Figure 2.4.1.h. Pollutant Report (Photochemical Oxidants)

DATA LISTING FOR OXIDANT (44101) QUESTIONNAIRE

SAROAD SITE CODE: STATE/ AREA/ SITE/ AGENCY/ PROJECT	DATA RECEIVED MONTH/ YEAR	METHOD CODE	LABORATORY ID	SAMPLER BRAND NAME	SAMPLER MODEL NUMBER	3A 2ND SAMPLER	4 MINIMUM CONCENTR	5 CALIBRATION FREQUENCY	6 PRECISION	7 SPOT CHECKS	8 ZERO SPAN	9 MULTIPOINT	10 LOGBOOK	11 DATA CHECKS	CCI SCORE GRADE
361220020H01	03/74	11	04	MONITOR LAB	0000008100	W	.0050	-	Y	Y	C	A	Y	Y	96-A
361300033H01	03/74	11	05	BENDIX		N	.0020	C	N	Y	A	C	Y	Y	80-B
361300034H01	03/74	11	05	BENDIX		N	.0020	C	N	Y	A	C	Y	Y	30-B

Figure 2.4.1.h (continued). Pollutant Report (Photochemical Oxidants)

2.4.1.5 OPINION SURVEY BY AGENCY

2.4.1.5.1 GENERAL DESCRIPTION

This report, which consists of responses to a set of eight questions, is an opinion poll type of document. Because there are no "right" of "wrong" answers, no QCI data are included. There is no associated quality control index and, hence, no QCI report.

2.4.1.5.2 RETRIEVALS AVAILABLE

The opinion survey data may be selected for a single agency, for all agencies within a given state, and for all agencies nationwide.

2.4.1.5.3 SORTS AVAILABLE

a. State
b. Agency ID Number

The Opinion Report does not use the QAMIS standard sort because no QCI information is included in the report and no Report Type number is used.

2.4.1.5.4 SAMPLE REPORT

Figure 2.4.1.i shows questions and answers for a typical opinion survey report.

```
** SAMPLE QUESTIONNAIRE **                 OPINION POLL FROM                      ** SAMPLE QUESTIONNAIRE **
                                 DATA QUALITY CONTROL INFORMATION SHEET FOR
                                           AIR POLLUTION AGENCIES

               RESPONSE BY AGENCY HEAD OR DESIGNATED QUALITY CONTROL OFFICER

               1.  IN YOUR OPINION CAN A STRUCTURED DATA QUALITY CONTROL PROGRAM BE OF VALUE AND BENEFIT
                   TO OVERALL AGENCY GOALS?  (Y OR N)

               2.  ESTIMATE THE PERCENT OF THE OVERALL PROGRAM BUDGET, IN YOUR OPINION, THAT SHOULD
                   APPROPRIATELY BE DEVOTED TO A QUALITY CONTROL PROGRAM.
                        (A)  RANGE, 1-5 PERCENT
                        (B)  RANGE, 6-10 PERCENT
                        (C)  RANGE, 11-15 PERCENT.
                        (D)  RANGE, 16 PERCENT OR GREATER

               3.  RANK THE AGENCY'S CURRENT OR MOST RECENT QUALITY CONTROL PROGRAM.
                        (A)  VERY POOR
                        (B)  POOR
                        (C)  FAIR
                        (D)  GOOD
                        (E)  SUPERIOR

               4.  ORDER  (RANK AS 1, 2, 3, 4; 1=HIGHEST) THE FOLLOWING STATEMENTS TO REFLECT YOUR
                   OPINION AS TO THE FACTORS THAT WOULD IMPROVE THE AGENCY'S DATA QUALITY OPERATIONS:
                         A.  BETTER QUALIFIED PERSONNEL
                         B.  BETTER INSTRUMENTATION
                         C.  BETTER LABORATORY FACILITIES
                         D.  PERIODIC AUDITS OF OPERATING PROCEDURES OR PERSONNEL

               5.  SIMILARLY, ORDER THE STATEMENTS TO REFLECT THE FACTOR THAT RESULTS IN A SOURCE OF
                   ERROR IN PROCEDURES OF MEASUREMENT OF POLLUTANTS (I.E. 1=LEAST 4=GREATEST):
                         A.  CALIBRATION PROCEDURES
                         B.  METHOD OF ANALYSIS
                         C.  DATA REDUCTION
                         D.  OPERATOR  .

               6.  ORDER THE STATEMENTS TO REFLECT THE INCREASING IMPORTANCE OF FACTORS FOR GOOD DATA
                   QUALITY:  (I.E.  1=MOST IMPORTANT TO 4=LEAST IMPORTANT)
                         A.  PERSONNEL TRAINING
                         B.  PERIODIC AUDITS OF OPERATIONS
                         C.  USE OF CONTROL SAMPLES TO TEST PROFICIENCY (EG. MOBILE SAMPLER IN
                                 PARALLEL TO CHECK EQUIPMENT SAMPLING OF TSP)
                         D.  PROPER PROCEDURES FOR MAINTENANCE AND CALIBRATION OF INSTRUMENTS

               7.  RANK THE FOLLOWING POLLUTANTS  (1=MOST NEEDED TO 6=LEAST NEEDED) TO REFLECT WHERE
                   GUIDELINES (EPA OR OTHER) ARE MOST NEEDED FOR POLLUTANT MEASUREMENT METHOD:
                         A.  TSP                            D.  OXIDANT
                         B.  HC                             E.  NO-2
                         C.  CO                             F.  SO-2

               8.  IS IT YOUR OPINION THAT INSPECTION, OF OPERATIONAL EQUIPMENT AND OPERATORS, BY OTHER
                   THAN AGENCY OFFICIALS WOULD RESULT IN HIGHER QUALITY DATA?  (Y OR N)
```

Figure 2.4.1.i. Opinion Survey Report

```
THURSDAY        MAY 29, 1975         . DATA LISTING FROM AGENCIES QUESTIONNAIRE OPINION POLL                                                      PAGE 01

                  (1)                 (2)                (3)              (4)         (5)          (6)               (7)                (8)
STATE/       CAN QC PROGRAM      WHAT PERCENT OF    RANK AGENCY'S      ORDER QC     ORDER       ORDER DATA      RANK NEED FOR      WOULD OUTSIDE
AGENCY       BE OF BENEFIT TO    BUDGET SHOULD      CURRENT OR         PROGRAM      ERROR       QUALITY         POLLUTANTS         INSPECTORS BE
CODE         AGENCY GOALS?       QC PROGRAM GET?    RECENT PROGRAM     NEEDS        FACTORS     FACTORS         GUIDELINES         OF HELP?
----         ----------------    ---------------    --------------     --------     -------     ----------      -------------      -------------
05/001            YES                6-10               GOOD           A - 3        A - 4       A - 1           TSP-1  OX -6            NO
  .                                                                    B - 1        B - 3       B - 3           HC -4  NO2-2
                                                                       C - 4        C - 2       C - 4           CO -5  SO2-3
                                                                       D - 2        D - 1       D - 2
05/030            NO                 1-5               SUPERIOR        A - 3        A - 1       A - 1           TSP-1  OX -4            NO
                                                                       B - 2        B - 4       B - 4           HC -2  NO2-3
                                                                       C - 1        C - 3       C - 3           CO -6  SO2-5
                                                                       D - 4      . D - 2       D - 2
05/330            YES                16+               SUPERIOR        A - -        A - -       A - 2           TSP--  OX --            NO
                                                                       B - -        B - -       B - 4           HC --  NO2--

'-' INDICATES NO RESPONSE TO QUESTION;  '*' INDICATES INSUFFICIENT INFORMATION SUBMITTED TO COMPUTE A QCI
```

Figure 2.4.1.1 (continued). Opinion Survey Report

The Hazardous and Trace Emissions System (HATREMS) is a computer based emission inventory system currently being developed for storing and retrieving emissions data from both point and area sources. The system will be closely related to NEDS (see 2.1.0.0) in that it stores similar data and produces a similar set of reports; however, it will be designed to handle any number of pollutants rather than the 5 criteria pollutants.

Additional information on HATREMS reports will be available when the system development is complete.

The SIP system was designed to automate the process of updating and retrieving selected portions of the various State Implementation Plans. At the present time, only officially approved rules and regulations are entered into the system. In each case, the full tests of the rules and regulations portions of the respective SIP's are used.

The SIP system yields retrieval of the full texts of the selected portions of the SIP's of interest. There are more than 180 identifying codes available to use as retrieval keys. Examples of these keys are:

a. Source surveillance record keeping
b. Sulfur dioxide control regulations for Kraft pulp mills

The desired subject matter will be retrieved for the state or states specified in the report request. A special "Type 4" output consists of the number of regulations that meet the selection criteria. This is useful to the user before he makes the actual full text retrieval because he can obtain an idea of the probable volume of output that will be forthcoming.

The terms "segment text" and "text category" that appear in the following paragraphs are defined as follows:

a. Segment text refers to the actual text of the given SIP or SIP's that is printed out by the computer as a result of the request specifications. For most requests, this text will be a "segment" of the Specified Plan or Plans, rather than the complete Plan.
b. Text category refers to one or more of the 185 requirement codes that are used to specify the exact type of regulatory test desired. An example of a text category is "SO$_2$ control regulations for Kraft pulp mills." The complete list of these requirement codes may be found in Volume V of the AEROS Manual

2.6.1.1 GENERAL DESCRIPTION AND AVAILABLE OPTIONS

There are at present four types of reports available to the user of the SIP Rules and Regulations Information System. These are:

		RETRIEVALS AVAILABLE	SORTS AVAILABLE
a.	State Name, Document ID, Status, Segment Text ("Type 1" Report)	State (up to 3), Text Category (up to 3 requirement codes may be specified), geographic areas (up to 3 for one state only), and retrieval of text within specified document and segment ID numbers. Certain combinations of the above selection criteria are permitted. If no state is specified, retrieval will be made for the entire nation.	Primary key is the State Code, secondary key is the Region Code, and tertiary key is the Document-Segment ID, Regulation Status, and Effective Date. Following these basic sort keys are subsidiary keys which are functions of the report type requested.
b.	State Name, Document ID, Status, Segment Text, Comments ("Type 2")	(Same as above except for retrieval of text within specified document and segment ID numbers.)	(Same as above.)
c.	State Name, Document ID, EPA Requirement Codes, Areas of Applicability (or Exclusion) Codes ("Type 3" Report)	(Same as above.)	(Same as above.)
d.	Number of Document Segments Fulfilling Search Criteria ("Type 4")	(Same as above.)	(Same as above.)

The SIP System makes use of certain specialized codes for representing geographical areas and text categories ("requirements"). These codes are given in Volume V. The retrievals and sorts for each report type are fixed by the program and no options are available to the user other than to specify the number of optional parameters upon which he wishes to base his request. There are (as of March 1975) 185 EPA Requirement Codes. These form the basis for selective retrieval of text categories within a given state or states.

2.6.1.2 SAMPLE REPORTS

Figures 2.6.1.a, b, c, and d show samples of each report type for text category retrievals for the District of Columbia.

```
                                                                  PAGE 1
*************************************************************************
      STATE: DIST. OF COL.     DOCUMENT ID: AA0011     STATUS: I
*************************************************************************

                         SEGMENT TEXT

    SECTION 8-2:707
    (E) WASTE GAS DISPOSAL FROM ETHYLENE PRODUCING PLANT. NO
    PERSON SHALL CAUSE, SUFFER, OR ALLOW THE EMISSION OF A WASTE
    GAS STREAM FROM ANY ETHYLENE PRODUCING PLANT, OR SOURCE ...
```

Figure 2.6.1.a. Sample of Print Format 1

```
                                                              PAGE 1
*************************************************************************
        STATE: DIST. OF COL.      DOCUMENT ID: AA0011      STATUS: I
*************************************************************************

                         SEGMENT TEXT

      SECTION 8-2:707
      (E) WASTE GAS DISPOSAL FROM ETHYLENE PRODUCING PLANT.  NO
      PERSON SHALL CAUSE, SUFFER, OR ALLOW THE EMISSION OF A WASTE
      GAS STREAM FROM ANY ETHYLENE PRODUCING PLANT, OR SOURCE ...

                           COMMENTS

      (B) BY FEBRUARY 1, 1973 THE COMMISSIONER SHALL REPORT TO THE
      DISTRICT OF COLUMBIA COUNCIL THE STATUS OF THE AIR QUALITY
      MONITORING SYSTEM WITHIN THE DISTRICT ...
```

Figure 2.6.1.b. Sample of Print Format 2

```
                                                                  PAGE 1
*****************************************************************************
      STATE: DIST. OF COL.       DOCUMENT ID: AA0011
*****************************************************************************

                         EPA REQ. CODES

A03  102  N01  N02  V01   A16   A15   K13   R06  S08  K06  L03  S07  S02  S06
S03  R01  R02
                         AREAS OF APPLICABILITY

BQAA   BQAB   BQAC   BQBA   BQBC   BQCA   BQCC   BQCE   BQCG   BQCI
BQDI   BQDM
```

Figure 2.6.1.c. Sample of Print Format 3

```
********* THE NUMBER OF DOCUMENT SEGMENTS FULFILLING SEARCH CRITERIA - 00033
```

Figure 2.6.1.d. Sample of Print Format 4

ENVIRONMENTAL PROTECTION AGENCY	**SECTION** REPORT CAPABILITIES	**SECTION** 2	**CHAPTER** 7	**SUBJECT** 0
NATIONAL AIR DATA BRANCH	**CHAPTER** FEDERAL POWER COMMISSION FORM 67 SYSTEM	**DATE** 9/30/75		**PAGE** 1
VOLUME III. AEROS SUMMARY AND RETRIEVAL MANUAL	**SUBJECT** REPORTS AVAILABLE			

The Federal Power Commission (FPC) collects each year a Form 67 from each of the major power plants in the United States. The data entered in the Form 67 include details of the physical equipment of the plant in question, such as boilers, stacks, and generators; the types and amounts of fuel burned at each point within a facility; and the kinds of pollution control equipment installed for each electric power generating plant in the United States that comes within the purview of the FPC regulation. Special provisions are made for the inclusion of newly installed boilers or other equipment, and for those retired from service as well.

An FPC Form 67 consists of 24 pages including the cover sheet, the table of contents, and general instructions and definitions. In addition to the information pertaining to the plant equipment and fuel consumption, a considerable amount of cost information is also included in the Form 67. The FPC produces a data tape of each year's data. Each tape (for years 1969-1973) has been sent to NADB. The tapes have been merged into a single tape. As the data for later years become available from the FPC, they will also be added to the EPA tape. A cross-reference table has been set up between the NEDS ID and the FPC plant ID. This cross-reference table permits the NEDS retrieval codes to be used. The complete FPC-67 information for all years of record for any given power plant or group of power plants is always obtained with each retrieval. Because, for some parts of the Form 67, there may be several pages of computer printout for a single page of the Form, a large volume of output may be generated, especially when data for several plants are requested.

2.7.1.1 GENERAL DESCRIPTION

The sample report (shown in part in Figure 2.7.1.a) reproduces, in computer printout form, the FPC Forms 67 for the years shown. There is a one-to-one correspondence between the data entered manually in the forms themselves and data appearing in the computer print-out, except that the FPC Form is made out once a year for each year of record, while the EPA's FPC-67 tape contains the consolidated data for all years in sequence for each plant in the file. All FPC-67 data are printed for each plant requested, thereby giving approximately 28-30 pages of output per plant.

2.7.1.2 RETRIEVALS AVAILABLE

Although the data for a given plant will always appear in the same format, there are 11 retrievals available in the NEDS retrieval system. These are:

a. State
b. State and County
c. State, County, and Plant
d. State, County, Plant, and Point
e. AQCR
f. Entire Nation
g. SCC (Source Classification Code); Parts I, II, III, IV, or any combination thereof
h. Ownership Code
i. SIC (Standard Industrial Classification)
j. State and SCC (valid combinations only)
k. Fuel Type (e.g., coal, oil, or gas)

Since Plant ID numbers are not unique among states, a request for a plant alone, without also specifying a state, does not constitute a valid retrieval. NEDS retrievals use a cross-reference table (See 2.7.0) to match between NEDS ID and FPC ID numbers.

In addition to the NEDS retrieval, FPC retrievals are possible by FPC company and plant ID. Each desired FPC Company ID Number/Plant ID Number combination must be specified.

2.7.1.3 SORTS AVAILABLE

The report format is fixed, so no optional sorts are available to the user.

2.7.1.4 SAMPLE REPORT

The Sample Report (see below) shows selected pages of an FPC Form 67 together with their corresponding print-outs from the EPA system. As can be seen, the Parts, Schedules, and Sections correspond to those in the Form 67 itself. The headings from the Form 67 are used in the computer print-out. The corresponding page numbers from the Form 67 are shown in the print-out, as well. See Figure 2.7.1.a.

STEAM-ELECTRIC PLANT AIR AND WATER QUALITY CONTROL DATA
PART I - AIR QUALITY CONTROL DATA

COMPANY NAME	
PLANT NAME	
COMPANY - PLANT CODE	REPORT FOR YEAR ENDED DECEMBER 31, 19 ______

SCHEDULE B - OPERATIONAL DATA (Cont'd)

Section 3 - Flue Gas Cleaning Equipment

LINE NO.	(a)	BOILER NO. (b)	BOILER NO. (c)	BOILER NO. (d)	BOILER NO. (e)	CHECK FOR FOOTNOTE ** (f)
21	BOILER NUMBER					
	MECHANICAL SEPARATORS:					
22	TESTED EFFICIENCY					
23	DATE OF TEST (YEAR/MONTH/DAY)					
24	ESTIMATED EFFICIENCY AT ANNUAL OPERATING FACTOR (if no test during year)					
	ELECTROSTATIC OR COMBINATION MECHANICAL-ELECTRICAL PRECIPITATORS:					
25	TYPE (Code "E" for Electrostatic, or "C" for Combination)					
26	TOTAL HOURS FOR THE YEAR DURING WHICH ALL ELECTRICAL BUS SECTIONS ARE ENERGIZED AND WHILE BOILER IS OPERATING *					
27	TESTED EFFICIENCY					
28	DATE OF TEST (YEAR/MONTH/DAY)					
29	STATE NUMBER OF HOURS DURING YEAR WHEN PRECIPITATOR IS NOT FULLY OPERATIONAL WHILE BOILER IS OPERATING.					
30	ESTIMATED EFFICIENCY DURING PERIODS WHEN BOILER IS OPERATING BUT WHEN PRECIPITATOR IS NOT FULLY OPERATIONAL					
31	ESTIMATED EFFICIENCY AT ANNUAL OPERATING FACTOR (if no test during year) *					
	DESULFURIZATION SYSTEM: ***					
32	HOURS OF SERVICE DURING YEAR * ..					
33	TESTED EFFICIENCY					
34	DATE OF TEST (YEAR/MONTH/DAY) ...					
35	ESTIMATED EFFICIENCY AT ANNUAL OPERATING FACTOR (if no test during year)*					
	OTHER FLUE GAS CLEANING TYPE (Explain in footnote)					
36	HOURS IN SERVICE DURING YEAR*					

* Explain in footnote unusual operating conditions

** All footnotes should be shown on page 12.

*** When operational

Figure 2.7.1.a. FPC Form 67 Report

```
* * * * * * * * * *  072080      CAROLINA POWER & LIGHT CO.                                   1300   WEATHERSPOON        * * * * *
FORM 67 PAGE 6
                                                  SECTION 3 - FLUE GAS CLEANING EQUIPMENT
YEAR   DATA FOR BOILER NUMBER:
1969     1
1970     1
1971     1
1972     1
 - - - - -MECHANICAL SEPARATORS: - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
YEAR     TESTED EFFICIENCY   DATE OF TEST
1969                                                                      ESTIMATED EFFICIENCY
1970                                                                      E+000000080.00
1971                                                                       +000000080.00
1972                                                                       +000000080.00
                                                                          E+000000080.00
 - - - - -ELECTROSTATIC (E) OR COMBINATION MECHANICAL-ELECTRICAL (C) PRECIPITATORS: - - - - - - - - - - - - - - - - - - - - - - -
           TOTAL HOURS FULLY
           ENERGIZED WHILE                                                HOURS PRECIPITATOR    EST. EFFICIENCY            EST. EFFICIENCY AT
YEAR  TYPE  BOILER OPERATING        TESTED           DATE OF TEST        NOT FULLY OPERATING   UNDER SUCH                 ANNUAL OPERATING
                                    EFFICIENCY       (YEAR/MON/DAY)      WHILE BOILER IS       CONDITIONS                 FACTOR
 - - - - -DESULFURIZATION SYSTEM: - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                                        ESTIMATED EFFICIENCY   OTHER FLUE GAS
         HOURS OF SERVICE                                               AT ANNUAL OPERATING    CLEANING EQUIPMENT
YEAR     DURING YEAR           TESTED EFFICIENCY   DATE OF TEST        FACTOR (IE NO TEST)    HOURS IN SERVICE
FORM 67 PAGE 6
                                                  SECTION 3 - FLUE GAS CLEANING EQUIPMENT
YEAR   DATA FOR BOILER NUMBER:
1969     2
1970     2
1971     2
1972     2
 - - - - -MECHANICAL SEPARATORS: - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
YEAR     TESTED EFFICIENCY   DATE OF TEST
1969                                                                      ESTIMATED EFFICIENCY
1970                                                                      E+000000080.00
1971                                                                       +000000080.00
1972                                                                       +000000080.00
                                                                          E+000000080.00
 - - - - -ELECTROSTATIC (E) OR COMBINATION MECHANICAL-ELECTRICAL (C) PRECIPITATORS: - - - - - - - - - - - - - - - - - - - - - - -
           TOTAL HOURS FULLY
           ENERGIZED WHILE                                                HOURS PRECIPITATOR    EST. EFFICIENCY            EST. EFFICIENCY AT
YEAR  TYPE  BOILER OPERATING        TESTED           DATE OF TEST        NOT FULLY OPERATING   UNDER SUCH                 ANNUAL OPERATING
                                    EFFICIENCY       (YEAR/MON/DAY)      WHILE BOILER IS       CONDITIONS                 FACTOR
 - - - - -DESULFURIZATION SYSTEM: - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                                        ESTIMATED EFFICIENCY   OTHER FLUE GAS
         HOURS OF SERVICE                                               AT ANNUAL OPERATING    CLEANING EQUIPMENT
YEAR     DURING YEAR           TESTED EFFICIENCY   DATE OF TEST        FACTOR (IF NO TEST)    HOURS IN SERVICE
```

Figure 2.7.1.a (continued). FPC Form 67 Report